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ISAAC HAYS, M.D.,

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TO READERS AND CORRESPONDENTS.

In our next number, we hope to have room for the communications of Profs. Bedford, Gross, Hard, Drs. Warren, Blackman, Peebles, Pleasants, and Trask.

Our limits have been largely exceeded in this number, and yet we are compelled to beg the indulgence of some of our correspondents. Their favours shall receive the earliest possible attention.

The following works have been received:

Treatise on the Structure, Diseases, and Injuries of the Blood-Vessels: with Statistical Deductions. Being the Essay to which the Jacksonian prize for the year 1844, was awarded by the Royal College of Surgeons of England. With numerous additions. By Edward Crisp, M. R. C. S., Member of the Council of the Pathological and Medical Societies of London, &c. &c. London, John Churchill, 1847. (From the Author.)

On the Inhalation of the Vapour of Ether in Surgical Operations: containing a Description of the various stages of Etherization, and a statement of the result of nearly eighty operations in which ether has been employed, in St. George's and University College Hospitals. By John Snow, M. D., University Lond. London, 1847. (From the Author.)

A Treatise on Fractures in the Vicinity of Joints, and on certain forms of Accidental and Congenital Dislocations. By Robert William Smith, M. D., M. R. S. A., &c. &c. Dublin, 1847. (From the Author.)

Account of a new Anæsthetic Agent, as a substitute for Sulphuric Ether in Surgery and Midwifery. By J. Y. Simpson, M. D., F. R. S. E., Prof. Midwifery in the University of Edinburgh. Edinburgh, 1847. (From the Author.)

Cholera, Dysentery, and Fever, Pathologically and Practically considered; or the Nature, Causes, Connection, and Treatment of these diseases in all their forms. By Charles Searle, M. D., M. R. C. S. E., &c. &c. London, 1847. (From the Author.)

The Medico-Chirurgical Transactions, published by the Royal Medical and Chirurgical Society of London, Vol. XIII. London, 1847. (From the Council.)

Guy's Hospital Reports: second series. Edited by Dr. G. H. Barton, Mr. E. Cock, Dr. E. L. Birkett, and Mr. A. Poland. Vol. V. London, 1847. (From the Editors.)

Summary of the Transactions of the College of Physicians of Philadelphia. From June to Nov., 1847. (From the College.)

Transactions of the Medical Association of Southern Central New York. Homer, 1847. (From the Society.)

The History, Diagnosis, and Treatment of the Fevers of the United States. By Elisha Bartlett, M. D., Prof. Theory and Practice of Phys. in the Med. Depart. of Transylvania University, &c. &c. Philadelphia, Lea and Blanchard, 1847. (From the Publishers.)

Females and their Diseases; a series of Letters to his Class. By Charles D. Meigs, M. D., Prof. of Midwifery, &c. &c. Philadelphia, Lea and Blanchard, 1848. (From the Publishers.)

Lectures on the Physical Phenomena of Living Beings. By Carlo Matteucci, Professor in the University of Pisa. Translated under the Superintendence of Jonathan Pereira, M. D., F. R. S., &c. Philadelphia, Lea and Blanchard, 1848. (From the Publishers.)

Tracts on Generation; translated from the German. By C. R. Gilman, M. D., Prof. of Obstetrics, &c., and Theodore Tellkampf, M. D., Gebhard Prof. Columbia College. No. 1. Proofs that the periodic maturation and discharge of ova are, in the mammalia and the human female, independent of coition, as a first condition of their propagation. By T. L. G. Bischoff, M. D., Prof. of Phys., &c. &c. New York, S. and W. Wood. (From Prof. Gilman.)

The Ancient World, or Picturesque Sketches of Creation. By D. T. Ansted, M. A., F. R. S., F. G. L., Prof. Geology in King's College, London. Philadelphia, Lea and Blanchard, 1847. (From the Publishers.)

The Practice of Medicine: A Treatise on Special Pathology and Therapeutics. By Robley Dunglison, M. D., Prof. Inst. Med., &c., in Jeff. Med. College. Third Edition, 2 vols. Philadelphia, Lea and Blanchard, 1848. (From the Publishers.)

Elements of General Pathology. By A. F. Chomel, Prof. of Clinical Medicine to the Faculty of Paris, Consulting Physician to the King, &c. &c. Third edition, considerably enlarged. Translated from the French, by F. E. Oliver, M. D., and W. W. Moreland, M. D., Members of the Massachusetts Med. Soc. Boston, W. D. Ticknor and Co., 1848. (From the Translators.)

On the Corpora Lutea. By C. D. Meigs, M. D. (From the Author.)

An Address delivered before the Ohio County Medical Society, on the evening of its organization, July 5th, 1847. By M. H. Houston, M. D., Member of the American Medical Association. Published by the request of the Society. Wheeling, 1847. (From the Author.)

Criticisms and Controversies relative to the Nervous and Muscular Systems. By Bennet Dowler, M. D. New Orleans, 1847. (From the Author.)

The American Medical Almanac for 1848: containing Statistics of the various Medical Colleges, Hospitals, Dispensaries, &c., of the United States; together with other information of value to the physician and student. Philadelphia, Lindsay and Blakiston. (From the Publishers.)

Practical Physiology; for the Use of Schools and Families. By Edward Jarvis, M. D. Philadelphia, Thomas, Cowperthwait and Co., 1847. (From the Author.)

Obstetrical Tables; comprising graphic Illustrations, with Descriptions and Practical Remarks; exhibiting, on dissected plates, many important subjects in Midwifery. By G. Spratt, Surgeon Accoucheur. First American edition from the fourth and greatly improved London edition, carefully revised, and with additional plates. Philadelphia, Wagner and M'Guigan, 1847. (From the Publishers.)

Materia Medica and Therapeutics. By Martyn Paine, A. M., M. D., Prof. of Inst. of Med. and Materia Medica, &c. New York, S. S. and W. Wood, 1848. (From the Publishers.)

Introductory Lecture to the Course of Materia Medica, in the University of Pennsylvania; delivered Oct. 21st, 1847. By Geo. B. Wood, M. D. (From the Author.)

Lecture Introductory to a Course on Surgery, in the University of Pennsylvania, containing a short Account of eminent British Surgeons, Physicians, Scientific, and Literary Men; delivered Oct. 22d, 1847. By Wm. Gibson, M. D., Prof. of Surg. (From the Author.)

Lecture Introductory to a Course on the Institutes of Medicine, in the University of Pennsylvania; delivered Oct. 20th, 1847. By SAMUEL JACKSON, M. D. Philadelphia, 1847. (From the Author)

An Introductory Address, delivered at the opening of the session of 1847–8, to the Students of the Memphis Medical College, Nov. 1, 1847. By GEO. R. GRANT, M. D., Prof. Theory and Pract. Med. Memphis, Tenn., 1847. (From the Author.)

An Introductory Lecture on the Relations of Chemistry to the Vital Force; delivered in the Philadelphia College of Medicine. By D. P. GARDNER, M. D., Prof. Chem. and Med. Jurisp. Published by the class session of 1847–8. Philada., 1847. (From the Author.)

A Medico-Botanical Catalogue of the Plants and Fern's of St. Johns. Berkly, South Carolina. An Inaugural Thesis, submitted to the Dean and Faculty of the Medical College of the State of South Carolina, for the degree of M. D. By FRANCIS PEYRE PORCHER. Charleston, 1847. (From the Author.)

A Biographical Notice of (the late) James Gardette, Surgeon Dentist of Philadelphia. Written at the invitation of Dr. C. A. Harris, for a "Dental Dictionary" he is about to publish. By EMILE B. GARDETT, M. D., Dentist. Philadelphia, 1847. (From the Author.)

An Essay on Strictures of the Urethra: with an Account of the Mode of Curing Strictures by Cutting. By JAMES BRYAN, M. D., formerly Prof. of Surgery in Acad. Med. Vermont, &c. Philadelphia, 1847. (From the Author.)

Annual Announcement of the Franklin Medical College of Philadelphia. Session 1847–8.

Catalogue of the Officers and Students of the Berkshire Medical Institution, for the year 1847. Pittsfield, Mass., Oct. 1847.

The following Journals have been received in exchange:—

The Edinburgh Medical and Surgical Journal. Oct., 1847.

The Medico-Chirurgical Review. Oct., 1847.

The London Medical Gazette. Sept., Oct., Nov., 1847.

Dublin Quarterly Journal of Medical Science. August, 1847.

The British and Foreign Medical Review. Edited by JOHN FORBES, M. D. Oct., 1847.

Dublin Medical Press. Sept., Oct., Nov., 1847.

Provincial Medical and Surgical Journal. Edited by R. J. N. STREETEN, M. D., F. R. S. Sept., Oct., Nov., 1847.

Medical Times. Sept., Oct., Nov., 1847.

Monthly Journal of Medical Science. Aug., Sept., Oct., Nov., Dec., 1847.

Revue Medico-Chirurgicale de Paris, (Journal de Médicine et Journal de Chirurgie réunis.) Sous la Direction de M. MALGAIGNE. June, July, Aug., Sept., Oct., 1847.

The British American Journal of Medical and Physical Science. Edited by ARCHIBALD HALL, M. D., &c. Oct., Nov., Dec., 1847.

The New Jersey Medical Reporter, and Transactions of the New Jersey Medical Society. Edited by JOSEPH PARRISH, M. D. Oct., 1847.

The Southern Journal of Medicine and Pharmacy. Edited by DRS. GAILLARD and DESAUSSURE. Nov., 1847.

The American Journal of Pharmacy. Edited by authority of the Philadelphia

College of Pharmacy. Edited by Profs. CARSON, BRIDGES, and PROCTOR. Nov., 1847.

The New Orleans Medical and Surgical Journal. Edited by DRS. CARPENTER, FENNER, HARRISON, and HESTER. Nov., 1847.

Illinois and Indiana Medical and Surgical Journal. Edited by DRS. BLANEY, BRAINARD, HERRICK, and EVANS. Oct., Nov., 1847.

The Southern Medical and Surgical Journal. Edited by PAUL F. EVE, M. D. Oct., Nov., Dec., 1847.

The Boston Medical and Surgical Journal. Edited by J. W. C. SMITH, M. D. Oct., Nov., Dec., 1847.

The Medical Examiner. Edited by R. M. HUSTON, M. D. Oct., Nov., Dec., 1847.

The Southwestern Medical Advocate. Edited by J. C. CROSS, M. D. Sept., 1847.

The Western Journal of Medicine and Surgery. Edited by DRS. DRAKE, YAUDELL, and COLESCOTT. Oct., Nov., Dec., 1847.

The Annalist: a Record of Practical Medicine in the City of New York. Edited by W. C. ROBERTS, M. D. Oct., Nov., Dec., 1847.

St. Louis Medical and Surgical Journal. Edited by DRS. LINTON and MCPHEETERS. Nov., Dec., 1847.

The American Journal of Insanity. Edited by the Officers of the New York State Lunatic Asylum, Utica. July, Oct., 1847.

Buffalo Medical Journal. Edited by AUSTIN FLINT, M. D. Oct., Nov., Dec., 1847.

Wood's Quarterly Retrospect of American and Foreign Practical Medicine and Surgery. Nos. 1 and 2.

The American Journal of Science and Arts. Conducted by Profs. B. SILLIMAN, and B. SILLIMAN, JR., and JAMES D. DANA. Nov., 1847.

The Literary World. Oct., Nov., Dec., 1847.

The American Journal and Library of Dental Science. Oct., 1847.

The Missouri Medical and Surgical Journal. Edited by DRS. T. BARBOUR, and A. J. COONS. Nov., Dec., 1847.

The Dental Register of the West. Published quarterly, by order of the Mississippi Valley Association of Dental Surgeons. Editors DRS. JAMES TAYLOR, and B. B. BROWN. Oct., 1847.

The Western Lancet and Medical Library. Edited by Dr. L. M. LAWSON. Nov., 1847.

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All remittances of money, and letters on the *business* of the Journal, should be addressed *exclusively* to the publishers, Messrs. Lea & Blanchard.

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New Elements of Operative Surgery. By Alf. A. L. M. Velpeau, Professor of Surgical Clinique of the Faculty of Medicine of Paris, Surgeon of the Hospital of La Charité, Member of the Royal Academy of Medicine, of the Institute, &c. Carefully revised, entirely remodeled, and augmented with a Treatise on Minor Surgery. Illustrated by over 300 Engravings, incorporated with the Text: accompanied with an Atlas in quarto of 22 Plates, representing the Principal Operative Processes, Surgical Instruments, &c. First American, from the last Paris Edition. Translated by P. S. Townsend, M. D., late Physician to the Seamen's Retreat, Staten Island, New York. Augmented by the addition of several hundred pages of entirely new matter, comprising all the late Improvements and Discoveries in Surgery, in America and Europe, up to the present time. Under the supervision of, and with Notes and Observations by Valentine Mott, M. D., Professor of the Operations of Surgery, with Surgical and Pathological Anatomy, in the University of New York, Foreign Associate of the Académie Royale de Médecine of Paris, of that of Berlin, Brussels, Athens, &c. In 3 vols. 8vo: pp. 3180. New York, 1845–47. - - - - 147

XIII. Lectures on the Physical Phenomena of Living Beings. By Carlo Matteucci, Professor in the University of Pisa. Translated under the Superintendence of Jonathan Pereira, M. D., F. R. S., &c. London: 1847. 12mo. pp. 435. - - - - - - - - - 178

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XV. The Human Brain; its Structure, Physiology and Diseases, with a Description of the Typical Forms of Brain in the Animal Kingdom. By Samuel Solly, F. R. S., Senior Assistant Surgeon to St. Thomas's Hospital, etc. etc. With numerous Wood Engravings. Second Edition. London, 1847. 8vo: pp. 688. - - - - - - - 207

XVI. Practical Physiology for the Use of Schools and Families. By Edward Jarvis, M. D. Philadelphia, 1847: Thomas, Cowperthwait & Co.: pp. 368, 12mo. - - - - - - - - - - 212

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XVIII. Cholera, Dysentery, and Fever, Pathologically and Practically Considered; or the Nature, Causes, Connection, and Treatment of these Diseases, in all their Forms. By Charles Searle, M. D., M. R., C. S. E., &c. &c. 12mo: pp. 120. London, 1847. - - - - - - 217

XIX. The Practice of Medicine: a Treatise on Special Pathology and Therapeutics. By Robley Dunglison, M. D., &c. &c. Third edition, 2 vols. 8vo: pp. 767–704. Philadelphia, Lea & Blanchard. - - - 221

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ERRATA.

Page 79, 10th line from bottom, for *imminently* read *eminently.*
" 82, 2d line from top, for *positions* read *positive.*

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MEDICAL SCIENCES

FOR JANUARY, 1848.

Art. I.—*Researches into the Comparative Structure of the Liver.* By Joseph Leidy, M. D., (with three plates.)

The following observations* on the comparative structure of the liver were made solely for my own satisfaction, but I have been induced to make them public from the impression that some of the facts presented may be new, or that, at least, the anatomy of the liver being presented in a somewhat new aspect, may be better understood than by former methods of description.

It will be remarked that as respects the anatomy of the liver of vertebrated animals, the facts observed by me corroborate the very carefully made researches and accurate descriptions of the anatomy of the human liver by Mr. Kiernan. (*Philosophical Transactions*, London, 1833.)

The constant presence of the liver throughout the whole of the vertebrate series of animal life and the higher orders of the invertebrate series, is sufficient proof of the importance of the organ, in connection with the digestive apparatus. It is an extensive secreting surface collected into a small bulk, and in the vertebrata it is arranged in such a complex manner, that before the researches of Mr. Kiernan, anatomists entirely failed in obtaining any satisfactory knowledge relative to its arrangement.

Before entering upon the details of the anatomy of the liver, it may be well to examine in a very general manner the nature of secretion and the organs which possess this function. It is rather difficult to give a good general definition of the term secretion, for there are many organic processes which closely resemble it; such are respiration,* the renewal of epithelial surfaces, growth of hair, &c.; but to restrict it in some degree, it may be considered to be that process in an organic being by which certain organic cells, forming part of its composition, separate or form from the nutritive fluid, in contact with them upon one side through the intervention of a basement membrane, certain peculiar substances, which they give up upon the other side, to be appropriated to some other purpose in the organism, or to be cast off as useless, or which would be hurtful if retained.

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* These observations were made with an excellent microscope manufactured by Oberhaeuser, of Paris.

Particular organs devoted to this function are denominated glands, and the simplest form of a glandular body is a single organic cell resting upon a basement membrane, and having the function just spoken of. Such are probably the cells which secrete the irritating fluid in the *Medusæ*, certain cellules in the *Polygastric animalculæ, &c.* An increase of such cells upon a plane surface is a little advance on the former state, and appears almost as simple;—of this character are the glandular patches found in the alimentary canal of insects, &c. The surface upon which the secreting cells are placed, being depressed below the general level, adds a little more to the complexity of the structure, and in this way the simple mucous follicles are formed,—the follicles of the proventriculus of birds, follicles of Lieberkuhn, &c. Should these depressions, which if deep are tubular, be divided towards the extremity, it increases the amount of secreting surface, and renders it more complex,—as in the compound follicles of the stomach, the sebaceous follicles of the skin, &c. If the divisions be subdivided, glands like the salivary, lachrymal, &c., are formed. If, instead of subdivision, the primitive divisions are much elongated, and convoluted to economize space, we have a gland of which the testicle of the higher vertebrata is an example. If the tube be divided and subdivided to a great extent, and each ultimate division forms a reticulated mass of tubular structure, the most complex form of a gland is produced, as in the fully developed liver of most vertebrated animals. The relation of the channels which convey the nutritive fluid to and from glandular organs, of course adds considerably to their complexity. From the foregoing we perceive the complexity of a gland depends upon the extent and mode of arrangement of its secreting surface and the relation of the blood-vessels to it.

The quantity of secreted matter depends upon the number and activity of the organic cells forming a secreting surface, and the quality appears not to depend upon the complexity of the gland, but upon the power of the individual cells; for the same secretion produced in glands of the most intricate arrangement in higher animals, is produced in very simple structures in the lower animals, as instanced in the liver of the higher vertebrata, and that of *Amphioxus lanceolatus*, the testicle of man and that of *Julus*, &c.

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* In respiration there is not only a substance derived from the blood and given off externally, but also one derived from the exterior and given up to the blood, so that there is an interchange of substances which is not the case in secretion.

In the lowest forms of vertebrated animal life, where no distinct digestive apparatus exists, we find no trace of biliary structure. When we rise a little in the scale, and arrive at animals with an internal digestive cavity, as the *Polypi*, it is probable that certain of the cells forming part of the parietes of the cavity, may possess the power of secreting a fluid analogous to bile. Certain cellules, also, of the *Polygastrica* may be devoted to this purpose. The few short cœca of the digestive cavity of many *Medusæ* may also be biliary in their nature.

In the *Tænoidea* and *Trematoda*, animals which have a ramiform digestive apparatus, the cœcal appendages have been considered as a rudimentary form of the organ. They, however, do not differ in structure, which is granular, from the main portion of the cavity, and, like the latter, receive part of the alimentary matter. The cœcal appendages of the digestive cavity of the *Echinodermata* are reported as representing the biliary structure, a question, as in several of the former instances, which I have not yet examined. In many *Annelida* there are cœca appended to the sides of the alimentary canal, which are lined by organic cells of small size, and probably secrete a biliary fluid, as in *Hirudo*, *Arenicola*, &c. In the *Myriapoda*, emptying into the intestine, there are several long and delicate tubes of basement membrane lined by secreting cellules, in the *Julidæ* averaging ·0125 millimetre in diameter, which are no doubt of this nature; but as they do not differ in structure from corresponding tubes of insects, a more particular description of the latter will answer for the former.

Insects.—In insects the liver consists of a number of distinct, white, yellow or brown, filiform, tortuous tubes placed in close apposition with the sides of the alimentary canal and opening into it, generally by separate orifices, frequently after joining each other to form short trunks, as in *Musca*, *Tabanus*, &c., in the vicinity of the pyloric extremity of the stomach. The smallest number, which is four, occurs in the flies (*Diptera*); in the *Lepidoptera* there are six; and in the *Orthoptera* and *Hymenoptera* they are numerous. When few in number, they are very long, sometimes three or four times the length of the intestinal canal; when numerous, they are proportionately short, and more delicate. In some insects they terminate in blind extremities, as in many *Diptera;* in others they unite in pairs, at their farthest extremity, so as to form loops, as in the bugs, (*Hemiptera.*)

When more intimately examined, these tubes (Plate I. Figs. 2, 3, 4, 5, 6) are found to consist of a delicate tube of clear, transparent, amorphous basement membrane, the inner surface of which is covered with secreting cells. From the thinness of the tube, the cells often project so as to give it a granulated appearance when viewed by the naked eye, as in the flesh fly, (*Musca carnaria,*) (Pl. I. Fig. 1;) and generally towards the free extremity, the sides of the tubes are so irregular that they appear as if merely folded upon the secreting cells to keep them together.

The secreting cells (Pl. I. Figs. 4, 5, 7) are round, oval, or nearly cylindrical from elongation. Their average measurement is about ·09 millimetre. The contents are white, yellowish, or brownish, and consist of a finely granular matter, numerous fine oil-globules, a granular nucleus, and a transparent nucleolus.

The cells in the extremity of the tubes are not more than half the size of those, a little farther on, or nearer the termination, and contain less granular matter, and no oil-globules, so that they are more distinct, and the nucleus more apparent. Upon advancing a very little, the cells are found to be of an increased size and full of granular matter, so as considerably to obscure the nucleus from view. A little farther, we find the addition of fine oil globules readily distinguishable by their thick black outline, when viewed in a certain focus. Sometimes the cells become so filled with oil as to be distended with it, rendering the granular matter and nucleus so transparent, as totally to destroy all appearance of the former, and the latter only is to be perceived in faint outline. Such a state I have frequently observed in *Dermestes*, *Ateuchus*, &c.

The nucleus (Pl. I. Fig. 7) is generally central, globular, and pretty uniform in size in the same species, averaging in measurement about ·025 millimetre. Sometimes, as in *Cicada*, &c., where the cells are elongated, the nucleus is also irregularly so. (Pl. I. Fig. 5.)

The nucleolus is always transparent, and measures about ·006 of a millimetre.

The central passage of the tubes, or separation of the cells in the middle line, is usually found filled with fine granules and a great amount of oil globules. (Pl. I. Figs. 4, 5.)

The biliary tubes of insects are bathed in blood or the nutritive fluid, and the respiratory tracheæ are distributed to them with extreme minuteness, but are separated from the secreting cells through the intervention of the basement membrane. (Pl. I. Figs. 2, 3.)

Crustacea.—The liver in the common cray-fish (*Astacus affinis*) of our rivulets, consists of two large lobes, one on each side of the intestine, united by an isthmus anterior to the middle. Each lobe consists of numerous long conical cœca, aggregated together. (Pl. I. Fig. 8.) From each cœcum passes off a narrow duct, to join a common trunk which opens into the intestinal canal, in the vicinity of the pylorus. In structure the cœca (Pl. II. Fig. 9) resemble the tubes of insects, being composed of a sac of basement membrane, within which, originating from the inner surface, are numerous secreting cells. The cells are more or less polygonal in form from mutual pressure. In the bottom of the cœca, the cells (Pl. II. Fig. 10) are small, with an average diameter of ·02 millimetre, and contain a finely granular matter of a yellowish hue, with a granular nucleus, and a transparent nucleolus. As we proceed from the bottom onwards, the cells (Pl. II. Figs. 11, 12, 13) are found to increase in size, and to obtain a gradual addition of oil globules, until beyond the middle of the tube where they are found filled with oil, so as to have the appearance of ordinary fat cells, and have a diameter averaging ·06 millimetre. From this arrangement of the cells, when a cœcum is viewed beneath the microscope, (Pl. II. Fig. 8,) its lower half appears filled with a finely granular matter intermingled with nucleolated nucleated bodies, and the anterior half, with a mass of fat cells, the nucleus hardly visible, from the property of oil rendering organic tissues more or less transparent. The central cavity of the cœca is filled with fat globules, and a finely granular matter corresponding to that in the interior of the cells.

Mollusca.—The liver of the slug (*Limax*) and snail (*Helix*) consists of five lobes which are subdivided into lobules, (Pl. I. Fig. 16,) and each lobule is composed of numerous bulbiform cœca, polygonal from mutual pressure. From each of these passes off a duct, which by union form two trunks opening into the duodenum.

When one of the bulbiform cœca (Pl. I. Fig. 16) is examined beneath the microscope, it is found to have a structure differing in no important particulars from that of the cray-fish. The cells (Pl. II. Fig. 17) at the bottom of the sac average ·02 millimetre in diameter; those towards the other extremity about .04 millimetre. Some of the fully ripe cells (Fig. 18) are filled with innumerable minute globules of oil hardly distinguishable from the granular matter; others (Fig. 19, *a*, *b*, *c*) with globules of a larger size; some (Fig. 21) are found with from one to ten, or more, large, deep yellow oil globules in the centre; a few (Fig. 22) with a hard, or crystallized mass of fat in the centre; and many (Fig. 20) are distended with oil. By pressing the cells (Fig. 23) between two plates of glass, the contents will be squeezed out, and the structure will be seen as follows:—The vesicular, transparent, amorphous cell wall, finely granular matter, fat globules, and a granular nucleus, measuring about ·01 millimetre, and containing a hard, transparent nucleolus. A few of the cells contain two nuclei.

The blood-vessels, consisting of arteries and veins, form a rete around the bulbiform cœca, but do not appear to come in immediate contact with the secreting cells. Along the course of these vessels, and attached to them, numerous nucleated fat cells exist, and the white opaque colour, which often renders these vessels so conspicuous, as they ramify in the brown-coloured liver, I find arises from innumerable minute oil globules attached to every part of their parietes.

Vertebrata.—In vertebrated animals the liver is of large size and of no general regular form. It is usually divided by deep fissures into several portions or lobes, which are invested by the peritoneum. In colour it passes through all the shades of light pink or nearly white, yellow, red, brownish purple, and brown. When the surface is closely examined beneath the transparent peritoneum, it will be found to have somewhat the appearance of a mosaic structure, a dark ground inlaid with small portions of a lighter colour. In intimate structure it consists of numerous, small, irregular bodies, or lobules (lobules of Kiernan), corresponding to the lighter portions just mentioned, which are lobulated themselves and closely connected together by means of white and yellow fibrous tissue and the blood-vessels belonging to the organ, which correspond to the dark ground lines separating the lighter-coloured masses. The lobules are not regularly arranged side by side throughout the liver, but lie in all directions, principally, however, with their long diameters at right angles to the surfaces. When the vessels of a liver have been injected, and the organ then hardened in alcohol so that it may be rendered more consistent and its difference of structure more perceptible, and a section made at right angles to the surfaces of the organ, a view like Fig. 31, Pl. III., will be obtained. In such a section lobules will be observed to be cut in all directions; longitudinally, when they have a foliated appearance; obliquely or transversely when they have a more or less polygonal form depending upon the amount of mutual pressure at any part of the liver, being greatest in the interior, least near the surface. In their interior, sections of blood-vessels are seen, which belong to the hepatic veins; and the vessels occupying the interspaces between them are branches of the hepatic artery and vena portarum. The lobules are composed of an intertexture of biliary tubes, (pori biliari,) (Pl. III. Fig. 32,) and in the areolæ or interspaces of the network the blood-vessels ramify and form amongst themselves an intricate anastomosis, the whole being intimately connected together by a combination of the white fibrous and yellow elastic tissue.

In structure the biliary tubes (Pl. II. Figs. 25, 28; Pl. III. Figs. 33, 34), correspond with those of the invertebrata, consisting of cylinders of basement membrane containing numerous secreting cells, and the only difference exists in the arrangement; the free tubes of the lower animals in the vertebrata becoming anastomosed or forming an intertexture. The tubuli vary in size in an unimportant degree in different animals, and also in the same animal, being generally from two to two and a half times the diameter of the secreting cells. The tubes of one lobule are distinct from those of the neighbouring lobuli, or only communicate indirectly by means of the trunks or hepatic ducts originating from the tubes and lying in the interspaces of the lobuli. The secreting cells (Pl. II. Figs. 25, 26, 27, 29, 30; Pl. III. Figs. 35, 36, 37) are irregularly angular, or polygonal in form from mutual pressure, and line the interior surface of the tubes. They vary in size in a moderate degree in different animals and also in the same animal, appearing to depend upon certain conditions of the animal and liver. The colour is light yellowish, or brownish when in mass, the other and darker colours of the liver appearing to depend upon the blood in the organ. They contain a finely granular matter, oil globules, a granular nucleus, and a transparent nucleolus.

The finely granular matter is the portion from which the colour of the cell is derived; it appears to be made up of innumerable exceedingly minute spheriform granules, which, when under a low power of the microscope and well defined, look like so many minute black points. This substance, from its quantity and minute state of division, often obscures the nucleus so that it cannot be distinguished until acetic acid is applied to it, when it is rendered more translucent without affecting the nucleus. The oil globules vary in quantity in different conditions of the liver, and in different cells. It exists in the form of exceedingly minute globules, looking like so many intensely black points, and hardly perceptible from the granular contents of the cells, up to larger and distinct globules, sometimes one-fourth the diameter of the cell. From this gradual advance from the state in which it is hardly distinguishable from the granular matter up to a large size, and in the invertebrata even to a distended state of the cell, a gentleman, to whom I presented the observation, supposed that the liver only secreted fatty matter, while the gall-bladder secreted cholesterine, the latter fact being presented to his observation in several pathological cases, in which the cystic duct was obstructed and the bladder filled with white concretions (biliary calculi), which consisted of pure cholesterine. This, which appears plausible at first view, falls at once to the ground when it is recollected that some animals have no gall-bladder, as the horse, sloth, &c., and yet secrete a bile constituted like that of animals possessing a gall-bladder. The giraffe, it is also well known, in the three or four cases in which the animal has been dissected, in two cases had no gall-bladder, and in a third instance possessed one of large size. I have mentioned that the quantity of oil globules varies in different conditions of the animal or organ. If the animal be very fat, or be well fed, especially on substances containing much starch, it will be found in greater abundance than usual; as may be readily seen in the difference between poultry which run about and those which are penned up for fattening; and I have no doubt that in the preparation of the liver of geese, in which it becomes enormously enlarged, for making the "*paté de foie gras de Strasbourg*," there is not the addition of a single secreting cell, but merely an accumulation of fat globules, within the secreting cellules, derived indirectly from the starchy matters of the food, which ordinarily are consumed in the process of respiration. In phthisis, in which more or less of the respiratory surface is destroyed, the liver appears to take upon itself part of the office of the lungs, but rids the blood of the excess of carbon in another way, that is by converting it, with the elements of water, into fat, which is deposited within the cells, producing what is called "fat liver." The same condition of the liver is produced in drunkards, probably from the stimulation to nutrition and the conversion of the alcoholic constituents into fat. It is also produced in some other ways not well understood, as was presented to me lately in a case of Prof. S. Jackson's, in which the patient had laboured for a long time under disease of the liver and dyspepsia, and died of hemorrhage from the bowels consequent on extensive ulceration of the mucous membrane.

The nucleus is generally central, frequently lateral, globular, and pretty uniform in size in the same animal. It is granular in structure and never contains oil globules; generally, it is but indistinctly seen, excepting in fishes and reptiles, and frequently not at all, from the granular contents of the cell obscuring it, but is readily brought into view by the influence of acetic acid upon the latter. Sometimes there are two nuclei instead of one.

The nucleolus measures about ·001 millimetre, is round in form, consistent, and transparent, and is situated in the centre of the nucleus.

The interlobular trunks or commencement of the hepatic ducts, as they originate from the biliary tubes or pores, run in varied directions in regard to the lobules, and freely anastomose with each other, and by their convergence form trunks which take a general course at right angles to the surfaces of the liver, and finally appear by several trunks externally beneath the liver.

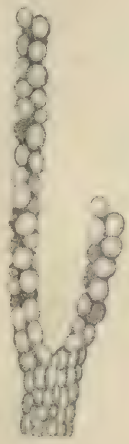
The blood-vessels (Pl. III. Figs. 38, 39) of the liver consist of two sets, the hepatic artery and vena portarum, which convey the blood to it, and a third set, the hepatic veins, which conducts the effete blood from it into the general circulation again.

The hepatic artery, much smaller than the vena portarum, appears to be appropriated to the nutrition and supply of oxygen to the tissues entering into the composition of the liver; while the vena portarum is probably devoted to the conveyance of blood to the secreting cells, which appropriate the peculiar fluid of the liver, or bile from it. These two vessels enter the liver at the place of exit of the hepatic ducts, and follow the same course inwards that the latter did in coming out. The artery in its passage supplies the ducts with branches and the vena portarum with vasa vasorum. In the intervals of the lobules they comport themselves very much in the manner of the interlobular ducts, and form an intricate network around the lobules, but whether the two sets of vessels anastomose I could not satisfactorily determine. They both send off numerous branches which enter the lobules at right angles to the length of the latter, and form an intricate plexus by turning through the interspaces of the biliary tubes. The vessels within the lobules freely communicate with each other and converge towards their interior, where they terminate in trunks, which run in the length of the lobules, and are the commencement of the hepatic veins. This free intercommunication of the three sets of vessels within the lobules has been fairly proved to me by a minute injection of a young liver, by Prof. Wm. E. Horner, of the University. All three of the vessels have been injected with red size, and it has penetrated beautifully, and a fine section from almost any part of it, beneath the microscope, has the appearance represented in Fig. 39.

The commencing branches of the hepatic veins issue from the base of

Plate 7

1



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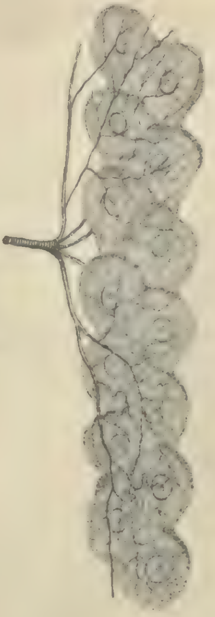

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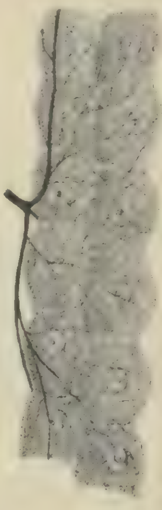

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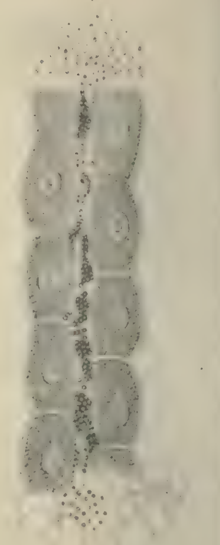

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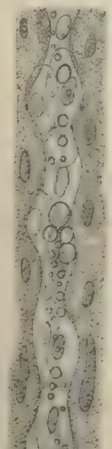

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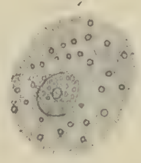

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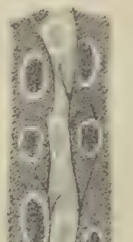

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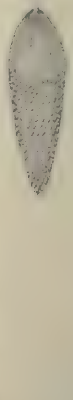

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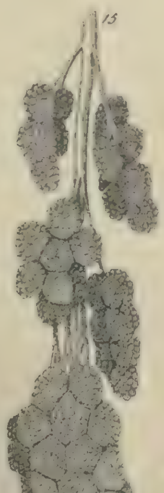

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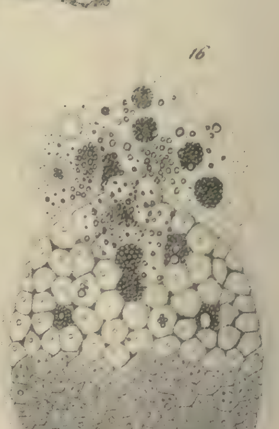
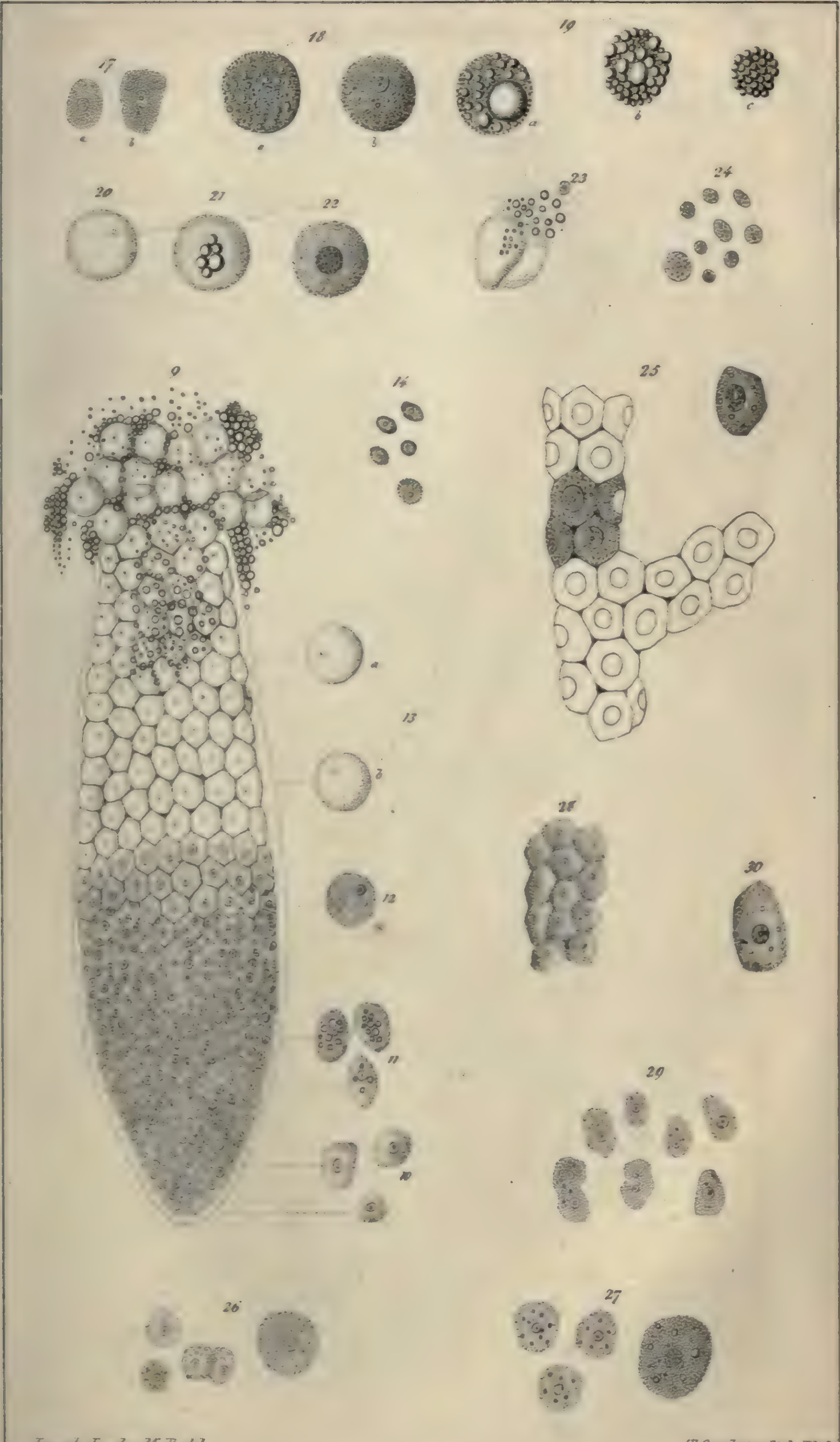


Joseph Leidy M.D. del.

T. Sinclair's lith. Phil^a

Plate 2



Joseph Leidy, M.D. del.

T. Sinclair's lith. Phil.

the lobules, and by their convergence, form several large trunks, which pass out of the liver at right angles to the other two sets and parallel to its surfaces, at its dorsal margin close to the spinal column.

Measurement of the Secreting Cells of the Liver of some Animals.

Centiped (*Julus impressus*) cell, .0125.
Tumble bug (*Ateuchus volvens*) cell, longest diameter .0225 m.; shortest, .0125 m.
Katydid (*Platyphyllum concavum*) cell, .13 m. in length; nucleus .0225 m.
House-fly (*Musca domestica*) cells, .09 by .06 m.; nucleus .0225 m.
Flesh-fly (" *carnaria*) cell, .09 m.; nucleus .0275 m.; nucleolus .006 m.
Cray-fish (*Astacus affinis*) cell, .02 to .06 m.; nucleus .015 m.
Snail (*Helix albolabris*) cell, .02 to .04 m.
Slug (*Limax variegatis*) cell, .03 to .06 m.
Rock fish (*Labrax lineatus*) cell, .0275 m.
Minnow (*Hydrargira ornata*) cell, length .02 m.; breadth .015 m.
Cat-fish (*Pimelodus catus*) cell, .0275 m.
Lizard (*Triton niger*) cell, .03 m.; nucleus .0125 m.
Frog (*Rana halecina*) cell, length .03 m.; breadth .02 m.; nucleus .005 to .01 m.
Terrapin (*Emys terrapin*) cell, .03 m.
Snake (*Tropidonotus sirtalis*) cell, .02 to .0275 m.
Boa (*Boa constrictor*) cell, .03 m.; nucleus, .0150 m.
Duck (*Anas acuta*) cell, .0175 to .02 m.; nucleus .006 m.
Owl (*Strix brachyotos*) cell, average .015 m.; nucleus .005.
Chicken (*Gallus domesticus*), *lean*, cell .016 m.; *fat*, .017 m.
Ground Squirrel (*Sciurus striatus*) cell, .0175 m.
Gray " (*Sciurus Carolinensis*) cell, .015 m.
Rabbit (*Lepus Americanus*) cell, largest .03 m.; smallest .015 m.; nucleus .01 m.
Sloth (*Bradypus tridactylus*) cell, .0133 m., remarkably distinct.
Leopard (*Felis leopardis*) cell, .0125 to .015 m.
Monkey (*Simia* ———?) (*American*) cell, .015 m.
Man—cell, largest .03 by .02 m.; smallest .015 m.; average .02 m.; nucleus .009 m.; nucleolus .001 m.

Explanation of Plates I., II. and III.

Fig. 1 Represents a portion of a trunk and two branches of one of the biliary tubes of the flesh fly (*Musca carnaria*), viewed by reflected light, and magnified 8 diameters.

" 2, Portion of a biliary tube of the flesh fly, highly magnified, exhibiting the arrangement of the secreting cells, and the mode of distribution of the tracheæ.

" 3, From the house fly; exhibiting the same as fig. 2, with the exception of a different form of the cells.

" 4, Portion of a biliary tube from the house fly, highly magnified. The secreting cells are seen ranged upon each side with a passage between the rows, which is filled with oil globules.

" 5, 6, Portions of a biliary tube from the katydid (*Platyphyllum concavum*), exhibiting the elongated cells and nuclei.

" 7, A secreting cell from the liver of the flesh fly, very highly magnified. The nucleus with its nucleolus is seen near the centre of the cell, and distributed through the latter are seen numerous oil globules.

" 8, Portion of the liver of the cray fish (*Astacus affinis*), magnified 3 diameters, and exhibiting the structure of cœcal tubes.

Fig. 9, A cœcum or biliary tube of the cray fish (from an individual which was one inch in length and had been well fed for some time), highly magnified. At the bottom is seen a confused mass of cells with their nuclei and nucleoli, but at the upper part of the sac they are seen distinct, and polygonal from pressure, and filled with oil which renders them transparent. At the mouth or open extremity numerous detached cells and oil globules are perceived, which have been squeezed out by the pressure of a thin plate of glass.

Figs. 10, 11, 12, 13, a, b, Exhibit the progressive change of the cells as they advance from the bottom of the tube.

Fig. 14, Nuclei, from the secreting cells of the liver of the cray fish, highly magnified.

" 15, Portion of the liver of the snail (*Helix albolabris*), moderately magnified, exhibiting the arrangement of the lobules.

" 16, A biliary cœcum from the liver of the snail, highly magnified. It shows the same structure as fig. 9.

" 17, a, b, Two cells, from the bottom of a biliary cœcum of the snail, highly magnified.

" 18, a, b, Two cells, more advanced, containing numerous very minute oil globules.

" 19, a, b, c, Three cells, containing larger oil globules.

" 20, A cell distended with oil.

" 21, A cell containing nothing but six deep yellow consistent oil globules.

" 22, A cell containing a hard yellow mass of fat.

" 23, A cell ruptured and its contents escaping.

" 24, Nuclei, from the cells of the liver of the snail, highly magnified.

" 25, Portion of a biliary tube and secreting cells, from the liver of a lizard (*Triton niger*), highly magnified.

" 26, Secreting cells, from the liver of an owl (*Strix brachyotos*), highly magnified.

" 27, " " from a duck (*Anas acuta*).

" 28, Portion of a biliary tube of the rabbit (*Lepus Americanus*), highly magnified.

" 29, 30, Secreting cells from the liver of the rabbit.

" 31, Longitudinal section of human liver from the posterior part near the upper surface, magnified 3 diameters, from a preparation made by Prof. W. E. Horner of the University of Pennsylvania. The three sets of blood-vessels were injected with colouring matter and the preparation then preserved in alcohol. The blood-vessels represented in the drawing belong to the hepatic veins, and are seen at various parts coming from the interior of the lobules. The spaces between the lobules, which are filled with branches of the hepatic artery and vena portarum and hepatic ducts, have been purposely left white so as not to obscure the view of the lobules.

" 32, Transverse section of a lobule of the human liver, taken from the same preparation as fig. 31, highly magnified, and presenting to view the reticulated structure of the biliary tubes. In the centre of the figure is seen the hepatic vein cut across and several small branches terminating in it. Where the injecting matter did not run freely, it is seen standing in dots along the course of the vessels. At the periphery are seen branches of the hepatic artery, vena portarum and hepatic duct.

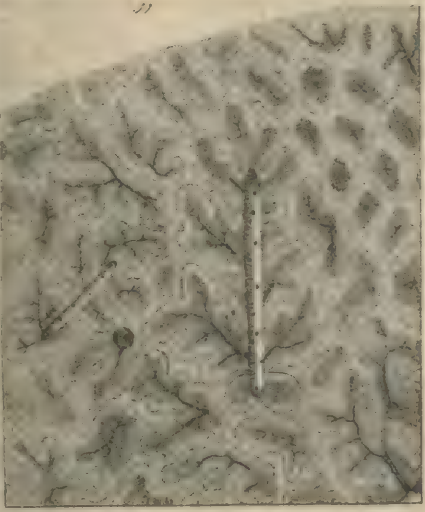
" 33, A small portion of fig. 33 more highly magnified. The secreting cells are seen within the tubes, and in the interspaces of the latter the fibrous tissue is represented.

" 34, Portion of a biliary tube, from a fresh human liver, very highly magnified. The secreting cells may be noticed to be polygonal from mutual pressure.

" 35, Three secreting cells detached.

" 36, A secreting cell much more highly magnified, representing plainly the internal

31



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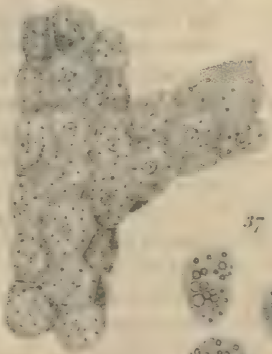

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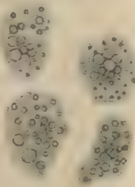

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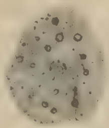

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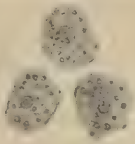

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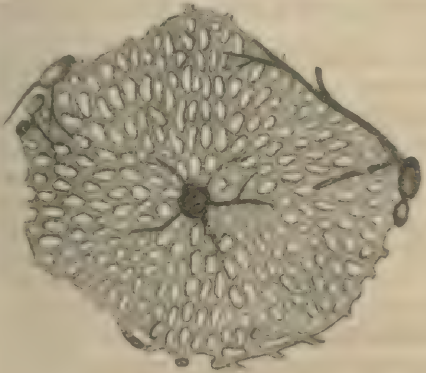

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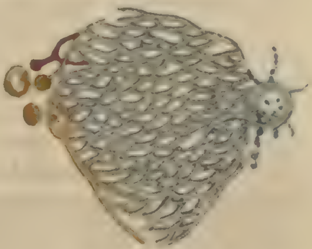

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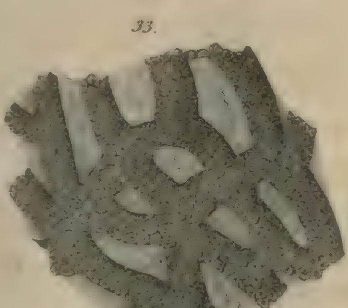

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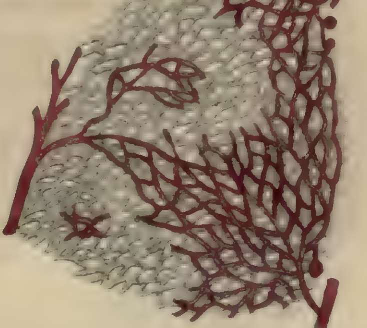

Joseph Leidy. M.D. del.

T. Sinclairs lith. Phil^a

[illegible]

structure. The granular nucleus is central, and the small bodies with thick black outlines represent oil globules.

Fig. 37, Four secreting cells, from a human liver, in a diseased condition called "fatty degeneration" or "fat liver." The great increase of oil globules is observable.

" 38, Transverse section of a lobule, from the same preparation as 31 and 32, but not so highly magnified as 32, representing the relation of the three sets of blood-vessels with each other and with the biliary tubes. The artery is coloured red, the vein blue, and the vena portarum yellow.

" 39 Represents a longitudinal section, highly magnified, of a portion of a lobule, from an injected preparation, made by Dr. Horner, of the liver of a child about 6 years of age. It will be perceived there is a free anastomosis of the three sets of vessels, which have all been successfully injected with red colouring matter. Spaces are also observable through which the injection failed to pass.

ART. II.—*Of the Relative Proportions of the different Organic and Inorganic Elements of the Blood, in different Diseases.* By CHARLES FRICK, M. D., of Baltimore.

THE following analyses were undertaken with no view to support any particular theory, in regard to the chemical changes that the blood undergoes in disease; nor is it proposed, in the present article, to enter into any discussion in regard to the transformation into each other of the different organic principles, nor of the peculiar purposes that each of them is supposed to subserve. Our object, so far as we were able, has been, first, to determine a formula for the composition of healthy blood that would serve as a standard with which we might afterwards compare that obtained in different diseases; so as to note whether any changes occurred which would prove of assistance in diagnosis or treatment. Andral, it is true, had already done a great deal in ascertaining the changes of proportion that the different organic elements undergo in various diseases; but there seemed still to be an ample field in the observation of the inorganic materials, which promised fully to repay any one who should undertake its cultivation. We are sorry to say that with us, in a great measure, this has not been realized.

It cannot be doubted that when any of the varied processes of nutrition take place in an abnormal manner, the blood, from the part it performs, undergoes important changes. In their relation to what is called disease, these changes are sometimes causes, and sometimes effects; and we have confined our researches principally to that class of diseases in which it is generally supposed the change that takes place in the blood is primary. The cases have been collected during the last eighteen months, and particular attention has been paid to the diagnosis, recording only those about which there was no doubt. Thus, although more than 150 cases have been analyzed by us, yet about 80 only are here presented; the rest being useless either from the uncertainty of the diagnosis, or the inaccuracy of the analysis.

In regard to the organic elements, both in a state of health and disease, the results that have been attained agree in almost every instance with those arrived at by Andral; while the normal proportions of lime, soda, potash, phosphoric acid and iron, are almost identical with those of Nasse and Enderlin. The notice of peculiar alterations in similar diseases we shall defer until speaking of them in detail, and in the mean time will merely state one prominent fact that has been observed in their examination collectively.

We have found that the quantity of the chlorides and phosphates of soda and potash is dependent, not upon the particular disease, but upon the season of the year in which the examination is made; and that the average for these salts is much higher during the Winter and Spring, than in the Summer and Fall. Thus, taking all the cases indiscriminately, the average for the months of November, December, January, February, March and April, is 5.146 for the chlorides, and 1.167 for the phosphates; whilst, during the months of May, June, July, August, September and October, the average is 3.759 for the chlorides, and 0.575 for the phosphates.

The following table shows the average for each month.

	Chlorides of Soda and Potass	Phosp. Sodæ and Potass.		Chlorides of Soda and Potass.	Phosp. Sodæ and Potass.
January,	5.121	1.064	July,	3.207	0.659
February,	5.196	1.074	August,	2.940	0.906
March,	5.359	1.459	September,	2.742	0.471
April,	6.565	1.103	October,	4.073	0.710
May,	4.397	1.023	November,	4.273	1.260
June,	3.914	0.635	December,	4.955	0.963

This difference, so apparent, may, perhaps, be accounted for by the increased exhalation from the skin that takes place at this period, and will easily explain how the idea became prevalent, that there was a diminution of these salts in the essential fevers. The average for the months of August and September is seen, by reference to the preceding table, to be far below that of any of the other months, and as these fevers mostly occur during the latter part of Summer and the commencement of Autumn, an examination of them, without comparison with other diseases occurring at the same period, would easily induce error.

Before giving the cases in detail, we will submit the method that has been followed in their analysis, and which has been arrived at only after laborious and repeated experiments.

The blood is first drawn into two vials, each containing about two ounces, which, by way of distinction, we shall call No. 1, and No. 2. These are allowed to stand until coagulation has taken place, and one of them, say

No. 1, is then weighed accurately: the contained blood is then poured into an evaporating dish, and dried till it ceases to lose weight. By ascertaining the weight of the empty vial, (which must be deducted from the whole amount,) and of the blood thus dried, we obtain already two of the desired results; viz., the amount of solids, and the amount of water, from which their relative proportions in 1000 parts may be easily estimated. This blood, now dried, must be put aside for incineration. We now pour off as much of the clear serum as we can from No. 2, into some small vessel, and after ascertaining the amount, dry it as before, and weigh it. The most convenient method of doing this is, after ascertaining the quantity, to pour it on a piece of paper already weighed, which absorbs readily, and then estimate the quantity of solids in the serum by drying this, and finding how much additional weight it has acquired. For instance, suppose we have poured on a piece of paper weighing 300 grains, 400 grains of serum, and find the paper, when dried, to weigh 340 grains. This 40 grains is deducted from the 400 grains of serum, and there is left 360 grains of water. Now, suppose that we have previously found in No. 1, that 1000 grains of blood contained 200 of solids and 800 of water; as all the water exists in the form of serum, the whole amount of solids of the serum, in 1000 grains of blood, will bear the same proportion to 800, as 400 does to 360. We now weigh the clot that remains in No. 2, as before, and on adding the quantity of serum poured off, obtain the whole amount of blood. We prefer pouring off the serum in the first instance, because in weighing, the change of position in the vial would be apt to render it turbid. The clot is then passed through a piece of fine muslin, and washed until the fibrin that remains becomes perfectly white, and afterwards dried and weighed. By this means the proportion of fibrin is ascertained, which, added to the solids of the serum, and deducted from the whole solids previously obtained, leaves the quantity of globules. This, we think, is an easier method than the one pursued by Andral and Gavarret, and fully as accurate.

We now come to the *inorganic* materials. In this, our attention was confined to the estimation of the principal elements only; viz., the iron, the lime, and the chlorides and phosphates of soda and potash. The blood that had been previously laid aside for incineration, is subjected to a red heat in a platinum crucible, until nothing remains but the salts, and a greater or less quantity of charcoal. This mass, after having been treated with distilled water, is filtered, until no residue remains on evaporation. The solution contains all the soluble salts. We divide it into two equal parts by means of a graduated glass, and in one precipitate the chlorides of soda and potash, with a solution of nitrate of silver, forming chloride of silver; and in the other, the phosphates of soda and potash, by adding a solution of sulphate of alumina and potassa, forming phosphate of alumina. These are collected on a filter, dried, washed and weighed. From them are easily deducted the amount of chlorides and phosphates. The mass left on the filter in the first operation, consists principally of iron, lime, phosphoric acid and charcoal. To separate these, the first step is to get rid of the charcoal, which is done by adding a few drops of nitric acid from time to time, and then heating it; thus supplying oxygen, and converting the carbon into carbonic acid. This could not be done at any previous step, because with the chlorine nitro-muriatic acid would have been formed. After the charcoal is entirely got rid of, the whole is weighed, and thus we obtain the amount of insoluble salts. It is then treated with boiling acetic acid, which dissolves out everything but the iron and phosphoric acid, which are collected on a filter, and estimated together as peroxide and phosphate of iron. The lime is then precipitated as oxalate of lime, collected and estimated as before.

If it is wished to obtain the urea and uric acid, the blood is first boiled to coagulate the albumen, and the remaining fluid then separated by pressure. As this fluid still contains some albumen which is held in solution by a free alkali, the latter must be neutralized by acetic acid, when a further precipitation takes place on the application of heat. This is then filtered and evaporated to dryness, when the urea and uric acid are dissolved out by alcohol, and their presence tested as in urine by nitric acid.

Becquerel and Rodier, in a series of articles on the composition of the blood, published about two years since in the *Gazette Médicale de Paris*, have also detailed their method of analysis; and as we find that our results differ in one or two important particulars from theirs, we propose to show how this difference may be accounted for. In the first place the average standard of the chlorides in our cases is much more elevated than in theirs. This, we think, can be explained by the circumstance of their using a porcelain crucible during the first part of the incineration, and their applying the heat for a much longer period than was done by us; thereby much increasing the risk of volatilizing a portion of the chlorides. We find, also, that they suppose all the insoluble matter left after taking out the iron, consists of phosphate of lime; consequently their average of lime is much above ours. Now the opinion generally among chemists is, that, on incinerating lime, iron and phosphoric acid together, the phosphoric acid always unites with the iron in preference to the lime. It may be proved that such is the case in the present instance, by two facts. We have supposed the iron collected on the filter, to consist of peroxide and phosphate of iron, from this reason. In a great many of the cases we estimated the phosphoric acid, but finding its quantity so uniform, we did not carry it out in every instance. Our proceeding was as follows: after separating the salts soluble in acetic acid, we weighed the iron that remained and then dissolved it in boiling nitric acid: to this phosphate of soda was added, and the whole heated to a red heat. The soda and phosphate of soda that had not entered into combination with the iron, were then dissolved out, and the solution filtered and weighed. The remainder was phosphate of iron alone. We always found, by the difference of weight, that less phosphoric acid was required to convert the whole into phosphate of iron, than would have been, had the whole been peroxide of iron, thereby showing that part of it was already phosphate of iron. And again, on testing the acetic solution with oxalic acid, the lime obtained very seldom amounted to the difference between the quantity of iron and of insoluble salts, as Becquerel and Rodier have assumed.

The following is the average that we have obtained from the examination of nine healthy individuals, four being females and five males. All of them were selected from the lower classes, and although well fed, were, nearly all, more or less intemperate.

Amount of	solids in	1000 grs.	208·622
Do.	Water	do.	791·378
Do.	Fibrin	do.	2·952
Do.	Globules	do.	127·426
Do.	Solids of serum	do.	78·244
Do.	Perox. and phos. ferri	do.	0·582
Do.	Lime	do.	0·183
Do.	Chlor. sod. and pot.	do.	4·822
Do.	Phos. sod. and pot.	do.	0·874

We have included in our list nine cases of inflammations of various kinds. We find the fibrin elevated above its natural standard, in all but one case, amounting in one instance to **10·337**, the highest we have yet found. The exception occurred in a young man, very large and stout, who had had a slight tonsillitis for some days unattended by fever. He had been taking large quantities of bicarbonate of soda and chlorate of potash, which would account for the great excess of the chlorides, being the highest number we have yet seen. The iron, as we should have remarked before, in every case without relation to the disease, bears almost an exact proportion to the quantity of globules, and we find the average of the nine cases to be almost exactly that of health. No. 2 had lost ℥xij of blood by a previous bleeding.

Acute Inflammations.

No. of case.	Disease.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Phosphates and perox. ferri.	Lime.	Chlorides, soda, and potass.	Phosphates, soda, and potass.	Date of patients' sickness.
1	Pleurisy	199·185	800·815	3·501	121·700	73·984	·566	·252	5·385	1·378	Dec. 14
2	Pneumonia	200·331	799·669	4·954	123·377	72·000	·685	·161	3·832	·854	Dec. 29
3	Pneumonia	214·493	785·507	10·337	131·263	72·893	·598	·262	4·322	1·012	Nov 23
4	Pneumonia	198·704	801·296	7·420	122·522	68·762	·562	·198	5·200	·975	March 1
5	Bronchitis	206·278	793·722	4·831	129·360	72·087	·573	·176	3·200	·822	June 3
6	Pleurisy	201·400	798·600	6·111	120·431	74·858	·509	·210	5·300	·654	Oct. 24
7	Enteritis	208·209	791·791	5·027	120·905	82·277	·546	·184	6·158	·808	April 2
8	Enteritis	211·904	788·096	4·646	118·134	89·124	·517	·190	6·430	1·423	April 16
9	Tonsillitis	229·276	770·724	2·773	142·394	84·109	·708	·176	7·048	1·390	Jan. 28
			Average	5·511	125·343	76·677	·584	·201	5·208	1·035	

Pulmonary Tubercles.—We have examined the blood of eight persons suffering with this disease. In four the tubercles were as yet crude, while in the others they had softened and cavities had formed. In No. 5, there was a very large cavity and extensive tuberculization in both lungs; and in No. 7, a man aged 70, there was a cavity in each lung. In comparing these two classes of cases, we have found a marked difference. The average for the fibrin in the first four, in which cases the tubercles were unsoftened, is 2.776, about normal; while in the others it is 4.114. This result is similar to that obtained by Andral. The albumen in every case is above the natural standard, although not so apparently. We have carried out the proportion that it bears to the whole amount of solids, in a separate column, and the fact that such is the case will be seen by reference to it. This is also true of each one of Andral's cases, although he seems not to have noticed it; for we find the average in his to be 94.3, while in ours it is only 87.847. The difference between the two stages is also apparent, the average for the first set being 90.83, and for the other 84.35. We make the following suggestion in regard to the increase of this material.

Albumen is deposited in all the tissues as a result of secondary assimilation; and we suppose that in a tubercular diathesis the vitality is not sufficient to carry it one grade further, and change it into globules, but allows it to remain as albumen, a nucleus for the deposition of tubercular matter, or perhaps to be changed itself into it. This albumen is deposited alike in every individual, but it is only in a tubercular diathesis, or where the vitality is lowered, that it is converted into tubercle. Andral says that tubercular matter is never deposited so long as the globules remain at their proper standard, and that when this deposition first takes place, they are always found lowered; and we may add, that the albumen is always found increased. This change is probably not an evidence that they are about to be deposited, as he also thinks; but, that the albumen remains unconverted into globules, accounting for the increase of the one, and the diminution of the other.

The iron and chlorides follow the laws noticed previously; while a marked difference is perceptible in both the lime and phosphates in the two contrasted stages. In the first set, the lime in every case is above the standard, while the phosphates are below; the average for the first being 0.277, and for the other 0.272; whilst, in the other set, the average is 0.083 for the lime, and 1.265 for the phosphates. This difference in the phosphates cannot be accounted for by the season of the year, for, on making the average from the table previously given, we obtain 0.952 for the first set, and 1.202 for the second; above what is here found in the one case, and below it in the other. It may be that these salts compensate, in a measure, for one another; or, perhaps the excess of the phosphates, occurring as they do in the cases which have been some time in the hospital, may arise from the fact, that these persons are constantly taking into their systems ammonia, of which there is always more or less, in every room where patients are collected together.

No. of case.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Ditto, proportionate to whole solids.	Iron.	Lime.	Chlorides of soda and potash.	Phosphates of soda and potash.	Date of sickness.
1	212·631	787·369	3·395	125·645	86·546	87·23	·564	·272	2·530	·336	Aug. 20
2	199·666	800·334	2·678	111·453	85·535	96·30	·487	257	5·632	·197	March 22
3	200·602	799·398	2·862	117·480	80·260	84·31	·510	296	4·822	·203	June 1
4	207·007	802·993	2·159	104·600	100·248	101·46	·416	·283	2·910	·351	Oct 1
5	169·000	831·000	5·250	94·833	68·917	85·83	384	·082	3·992	1·616	March 3
6	198·053	801·947	4·502	117·405	76·046	80·63	470	182	5·500	1·462	Feb 1.
7	155·000	845·000	2·352	91·456	61·192	82·94	·376	·027	3·560	1·275	Nov. 6
8	167·436	832·564	4·353	93·061	70·022	88·00	·391	·040	3·924	0·705	Nov. 23
		Average	3·145	100·604	76·844	87·84	·449	·179	3.722	·775	

Remittent and Intermittent Fever.—In the following table, the first five cases are of remittent, and the remainder of intermittent fever. Two are of the congestive form, one remittent, No. 1, and the other intermittent, No. 7. In studying the proportion of fibrin in these cases, it will be found that, in four of those classed as remittent fever, this element is above the average standard, the exception occurring in a patient, the duration of whose disease had been three weeks, and in whom all the elements of the blood, except the chlorides and the phosphates, were below their natural standard: while in five of the cases of intermittent fever out of seven, it is below the average quantity; No. 10, one of the exceptions, being complicated with ascites, and œdema of the lower extremities, coming on as an acute affection, and being preceded by a chill; and the other being complicated with a pneumonia at the summit of the lung. It has been suggested, that the difference between these two fevers consists in the first having an acute gastro-duodenitis superadded to the second, thereby producing the gastric symptoms, so common to the one, and wholly wanting in the other, and also accounting for the attendant fever, being of a continued type. The increase of the fibrin in these cases seems, in a measure, to substantiate this idea. The globules in the remittent form, in all the cases except the one above alluded to, are increased, as is the case generally with all the pyrexiæ. The changes of quantity in the chlorides and phosphates are found to be nearly dependent upon the particular month in which the examination is made; and instead of being diminished, as Stevens has asserted, are, in reality, somewhat above the average in a majority of the cases, viz., nine out of twelve.

No. of case.	Duration of disease.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Iron.	Lime.	Chlorides of soda and potash.	Phosphates of soda and potash.	Date of sickness.
1	2d day	211·780	788·220	3·456	128·232	79·920	·592	·179	4·424	·580	Oct. 10
2	5th day	217·063	782·937	3·814	138·546	74·707	·785	·164	5·380	1·012	Dec: 12
3	1st week	208·250	791·730	3·605	131·916	73·429	·627	·152	3·982	·562	Aug. 1
4	10th day	233·500	766·500	3·260	137·740	92·500	762	·223	5·063	·923	Oct. 29
5	3d week	146·022	853·978	2·813	90·306	52·903	·416	·054	4·928	·778	Dec. 4
6	16th day	176·586	823·432	2·000	97·380	77·188	·423	·083	5·582	1·322	Oct. 31
7	1st day	205·310	794·690	1·777	122·301	82·766	524	·223	3·449	·602	Aug. 6
8		197·015	802·985	2·324	124·526	70·165	·595	·083	5·332	1·743	Aug. 24
9		201·059	798·941	2·656	125·711	72·692	·613	·296	4·356	·208	Nov. 12
10		175·338	824·662	6·250	97·222	71·966	·446	·192	3·600	1·711	Nov. 24
11	2d day	207·347	792·653	3·057	129·772	74·518	·588	·197	6·396	1·261	Dec. 12
12	6 weeks	186·192	813·808	4·194	112·756	69·242	569	·169	4·828	·335	Jan. 3
			Average		118·484	72.447	·580	·165	4·797	938	

Typhoid Fever.—On an examination of the following analyses of the blood in Typhoid Fever, it will be found that, as far as related to the organic elements, they are in accordance with those made by Andral. There is a diminution of the fibrin in six of the ten cases, and we find that the globules are either in the normal proportion, or elevated above it in seven. The average for the lime is below what is found in a state of health, and this is true of every individual case with the exception of No. 3. The proportion of chlorides undergoes a slight diminution in almost every case, but scarcely enough to be of importance.

No. of case.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Iron.	Lime.	Chlorides of soda and potash.	Phosphates of soda and potash.	Date of sickness.
1	203·000	797·000	2·860	128·432	61·708	·590	·133	3·720	·893	Jan. 3
2	198·994	801·006	2·320	124·322	72·252	·586	·142	3·600	·782	May 3
3	177·520	822·480	1·978	107·265	68·277	427	·182	2·866	·443	Aug 16
4	191·084	808·916	2·884	121·924	66·276	·488	·125	3·094	·672	Aug. 10
5	217·890	782·110	2·290	132·970	82·630	·742	·120	2·864	·495	Oct. 10
6	207·200	792·800	1·886	127·314	78·000	525	·177	2·520	·622	Oct. 20
7	208·426	791·574	4·094	126·036	78·863	·556	156	2·940	906	July 10
8	217·063	782·937	3·814	138·546	74·704	·785	·164	5·380	2·012	Dec. 12
9	193·333	806·667	3·333	116·025	73·975	·597	·159	4·532	390	Jan. 26
10	212·365	787·635	3·346	141·476	67·543	·620	·121	3·720	·722	May 21
		Average	3·087	133·117	70·259	·604	·136	3·611	·706	

Typhus Fever.—The cases of Typhus Fever that are here presented, were all, except No. 7, taken from among the Irish emigrants who arrived in this country last spring. The fibrin, we see, is below its normal proportion, and the globules are increased in six of the seven cases. The exception No. 2, in whom we found this last element diminished to 116·224, had been sick for three weeks, and was very much emaciated. The average for the other six cases is 143·912 higher than we have found for the same number of cases in any other disease, not even excepting cerebral congestion, or apoplexy. The proportion of lime is diminished in five cases, while in No. 3, it attains a higher elevation than we have observed in any other instance, viz., ·362. The chlorides, as we have also seen previously in Remittent Fever, are, in a majority of the cases, somewhat elevated above their proper standard; while the phosphates are diminished. The blood of the first four of those cases was examined for urea and uric acid, and an analysis of the urine of all was made, except the last. We found urea, and uric acid, in very small quantities, in Nos. 3 and 4, the two cases in which the lime is so greatly in excess; while in the two others, no trace of either was discoverable. In the urine of all, these same principles were either normal, or much diminished. In No. 3 and No. 5, they were normal, while in No. 1, no trace of either was perceptible. And again, in No. 1 and No. 5, where the phosphates are so much in excess in the blood, the urine scarcely contained any; while in No. 6, where they are diminished almost a third in the blood, they were found in great abundance in the urine.

No. of case.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Iron.	Lime.	Chlorides of soda and potash.	Phosphates of soda and potash.	Date of sickness.
1	241·479	758·521	3·069	153·218	85·194	·630	·119	4·052	3·158	May 12
2	204·096	795·904	1·351	116·224	86·521	·529	·161	4·592	·826	May 14
3	226·300	773·700	1·046	140·297	84·957	·654	·362	4·924	·628	May 16
4	203·849	796·151	2·238	141·131	60·480	·650	·220	5·000	·580	May 18
5	214·612	785·388	3·315	140·647	70·650	·628	·071	5·316	1·176	May 19
6	215·517	784·483	2·968	141·061	71·488	·660	·118	3·976	·317	May 23
7	229·860	770·140	2·322	146·096	81·439	·683	·100	4·084	·653	August 4
		Average	2·329	131·231	80·103	·633	·165	4·549	1·048	

Albuminuria.—Three of these cases were chronic, well marked, and of some years' duration; the other, No. 3, was a large, stout black man, who, after a chill, was seized with pain in his loins and suppression of urine, followed, in a few days, by ascites and œdema. In this state he entered the Infirmary, and, after some weeks, went out cured. His urine was loaded with albumen, and, on an examination of the blood, after coagulation, the serum, instead of being clear, was found to resemble very nearly thick cream. This appearance was undoubtedly owing to the presence of undissolved albumen; and we at first supposed that this element was in a quantity too large to be entirely taken up by the water. But the analysis shows this reason to be incorrect, for the proportion of albumen is in reality below the normal quantity. We find, however, in this patient, a considerable quantity of urea, and uric acid, particularly the last. Now this albumen could only remain undissolved from the presence, in the blood, of some free acid. May not the lithic acid, here found, have exerted that effect?*

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* We find, in a case analyzed by Simon, that there was the same peculiar appearance of the serum, as we observed in this patient. He concludes that it was fibrin

Urea, and uric acid, were also found in No. 4, but in very small quantity; the other cases were not examined. In all, the urine was coagulable by heat and nitric acid. We are far from thinking the case detailed above, to be one of granular degenerescence, and, in fact, it should not have been placed in the table. It resembles, rather, those cases of dropsy that are seen to occur after scarlatina, where granular degenerescence has not yet taken place. In speaking of phthisis, we attempted to account for the excess of albumen in the blood; we would suggest the following explanation of its deficiency in that fluid.

From a want of sufficient vitality of the system in the transformation of the tissues, the albumen, instead of being changed into urea and lithic acid, passes into the kidneys as albumen. This they at first refuse to excrete, but, finally, when all the tissues are filled and clogged with it, the kidneys commence to pass off the superfluous quantity; and, having done so, they can afterwards only excrete albumen, which they do by taking it in an increased proportion from the blood, thereby accounting for its deficiency in that fluid. This albumen, undergoing a species of transformation called granular, fills up the cortical portion of the kidney, and renders it unfit for the proper performance of its functions.

In each of these cases, the fibrin was found to be much increased; and the solids of the serum, consisting of albumen principally, a good deal diminished; the average for the first being 5·396, and for the other, 65·400. In three cases of this disease, examined by Andral, the fibrin in all was found to be diminished; while in four analyzed by Franz Simon, this element was above the normal quantity. The lime in all is below the healthy standard; excluding No. 3, the case previously spoken of, the average for this salt is 0·078, less than one-half. The chlorides, phosphates, and iron, undergo no change peculiar to the disease.

No. of case.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin	Globules.	Solids of the serum.	Iron.	Lime.	Chlorides of potash and soda.	Phosphates of potash and soda.	Date of sickness.
1	143·819	856·181	4·474	81·569	57·645	·418	0·2	2·422	·630	August 3
2	207·000	793·000	7·622	126·949	72·468	·571	·078	2·591	·563	Sept. 10
3	194·925	805·075	6·053	118·671	70·201	·515	·148	6·270	·292	Dec. 31
4	182·402	817·598	3·845	117·207	61·350	·530	·085	5·176	·785	Feb. 24
		Average	5·396	111·599	65·400	·509	·098	4·114	·567	

Purpura Hæmorrhagica.—With the three cases that we have classed as purpura, we have included one of scurvy, viz., No. 2. This patient had just arrived from shipboard, after a long passage of three months, and had

from the effect, upon it, of chemical reagents. But, as we do not yet know the essential difference between fibrin and albumen, it is impossible to pronounce with any certainty about it.

lived entirely on salt provisions. His gums were soft, swollen, and bleeding; and he had had one or two slight epistaxes. He complained of a sense of heaviness in his head, and on his body were numerous petechiæ. But finding the changes in his blood to resemble, in a great measure, the other two cases, we have considered them all together. The first case was a man who entered the hospital with a fractured condyle, very anemic, and with a "*bruit de souffle*" in his carotids. A few days after his entrance, purpura made its appearance about the seat of injury, and extended in patches in both directions. He was bled on the third day of its occurrence. In No. 3, these patches appeared in a patient, who had been suffering with intermittent fever for two weeks. Let us now look at the condition of the blood in these cases. In two, the fibrin is increased one-third; while in the other it is very little below its normal quantity; and we must not forget, in this last case, that the man already had intermittent fever, which would, by itself, predispose him to have a diminution of the fibrin. This result is not in accordance with the conclusion arrived at by Andral in this disease, who considers purpura as a kind of hemorrhage, and where the fibrin must of necessity undergo a diminution. The blood, in these cases, had not the peculiar dissolved appearance usually described; for in each, the clot and the serum were found to be perfectly separable. It is true that, in the first of these cases, there was most probably inflammation set up around the fracture, and, as a consequence, an increase of fibrin: but this, if the other rule holds good, would, *per se*, prevent the occurrence of purpura. In four cases of scurvy, recorded by Franz Simon, the average for the fibrin was 5·04; while in one of purpura, he found it to be only 0·905. The globules, we see, are diminished in each individual case, making the average considerably below that of health.

We have found, in this disease, more alteration in the inorganic elements than in any other that has fallen under our observation. We have carried out, in a separate column, the proportion that the iron bears to 127 parts of globules, and it will be seen by this, that in each case this principle is greatly above the normal quantity, the average being nearly one-half more. The chlorides and phosphates are also increased, as was found to be the case in typhus and remittent fevers; while the lime is diminished to less than one-half, the average being 0·082. We will not bring forward any theoretical notions, by way of accounting for these alterations of quantity; partly, because the cases are too few in number to enable us to say that they are constant changes; and partly, because we think if they are facts, they will speak for themselves.

No. of case.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Iron.	Proportion of iron to 127 parts of globules.	Lime.	Chlorides.	Phosphates.	Date of sickness.
1	155·771	844 229	4·047	82·276	69·448	·467	·723	053	5 544	3 088	March 22
2	208 327	791·673	4 204	117 078	87·045	·721	·782	·110	6·846	1·126	April 12
3	197·015	802 985	2 324	124·521	70·165	·895	903	·083	5 332	1 743	November 24
		Average	3·518	107 960	75·553	694	·813	·082	5·907	1·986	

Acute Articular Rheumatism.—In the following table, No. 1 and No. 4 were patients in whom the disease was slight; No. 3, one in whom the duration had been six days, and where the disease was seated in one knee and ankle; and No. 2, another whose articulations were all more or less involved. He had been sick three weeks, and had been taking for four days large doses of phosphate of ammonia, which will account for the great excess of this salt in his blood. We could find no trace in that fluid, of either urea, or uric acid. The urine was examined in Nos. 2 and 3; in each there was a great excess of urea, with deficiency of lithic acid. It was also loaded in both cases, to an extreme degree, with lactate of soda, and in the last the phosphates, both earthy and alkaline, abounded.

The blood in this disease presents the same alterations that are found in ordinary inflammations, viz., an increase of the fibrin, and a slight diminution of the globules; we shall therefore submit these cases without additional remarks.

No. of case.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Iron.	Lime	Chlorides.	Phosphates.	Date of sickness.
1	208 209	791 791	5·027	120·905	82·277	·546	184	6 158	·808	April 2
2	211 111	788·889	8 318	103 241	99 552	·486	·153	3 277	3 298	January 31
3	194 952	805·048	6 722	122 162	66 068	555	·151	4·200	·644	Feb. 10
4	211·904	788 096	4 646	118 134	89·124	·524	·190	6 430	1·423	March 3
		Average	6·178	116·110	84 230	·525	·169	5 016	1·222	

Acute Dropsy.—The three cases of dropsy here presented, all occurred after intermittent and remittent fever, and in the first was preceded by a chill. We find the fibrin increased in two, and the globules diminished in all; this latter we would be led to expect, from the fact of the disease having always lasted some time before the supervention of the dropsy; but whether this diminution has any effect in the production of the latter, it is impossible to say.

No. of case.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Iron.	Lime.	Chlorides.	Phosphates.	Date of sickness.
1	175·383	824·662	6·250	97·222	71·866	·448	·192	3·600	1·711	Nov. 23
2	198·730	801·270	2·387	93·834	92·509	·476	·181	2·340	·680	August 6
3	200·622	799·378	3·202	114·819	88·609	·504	·200	4·001	1·010	Dec. 21
		Average	3·613	103·291	84·325	475	·191	3·313	1·134	

Anæmia.—All these cases of anæmia occurred after intermittent and remittent fever, and in all the duration of the disease was more than one year. None were complicated with dropsy; but No. 1, who had been in this condition, from her own account, for more than three years, and whose mucous membranes were perfectly white, was seven and a half months advanced in pregnancy. The lime, it will be seen, is far above the normal quantity, as are also the chlorides and phosphates. The increase in these elements is, however, not absolute; for, if we take into consideration the increased quantity of the serum, and the remarkable diminution of the globules, we will find that the relative proportions of these salts to the whole amount of solids, remain unchanged. Becquerel and Rodier suppose that this excess of lime in anæmic patients, is partly owing to its non-assimilation by the bones, and partly to its resorption from these organs. But this explanation seems to us entirely gratuitous, for we do not find that the bones of anæmic patients are more deficient in this principle than any others.

No. of case.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Iron.	Lime.	Chlorides.	Phosphates.	Date of sickness.
1	89·552	910·448	3·854	14·757	70·941	·068	·372	6·222	1·209	January 4
2	116·000	884·000	2·565	31·628	76·807	·143	·283	5·535	1·765	Nov. 26
3	113·870	886·130	2·876	35·673	75·321	·190	·321	4·326	1·002	October 6
4	84·090	915·910	2·034	29·826	52·130	·185	·100	3·668	·443	October 25
		Average	2·832	27·971	68·799	·146	·269	4·942	1·104	

Pregnancy.—The cases of pregnancy here detailed, are all in the advanced stages. The first was a woman æt. 34, large, stout, and eight months and a half advanced; the second, æt. 32, was in the eighth month; the third is the same case as No. 1 of the preceding table; and the last was advanced to the seventh month. The lime, the chlorides, and the phosphates, are increased as in the preceding set, and most probably for the same reason.

No. of case.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Iron.	Lime.	Chlorides.	Phosphates.	Date of sickness.
1	199·671	800·329	4·062	115·239	79·270	·528	·254	4·232	1·213	Nov. 28
2	197·368	802·632	4·902	113·609	78·857	·531	·126	7·236	1·449	April 22
3	89·552	910·448	3·854	14·757	70·941	·068	·372	6·222	1·209	January 4
4	201·672	798·328	3·922	120·320	77·430	·589	·198	3·721	·982	June 21
		Average	4·185	90·981	76·624	·429	·237	5·352	1·213	

Small-Pox.—The first of these cases was complicated with a pneumonia, was of the confluent form, and the blood was drawn on the tenth day after the appearance of the eruption. The other was of the discrete form, and was bled on the seventh day of the eruption. Both were blacks.

No. of case.	Solids in 1000 grains.	Water in 1000 grains.	Fibrin.	Globules.	Solids of the serum.	Iron.	Lime.	Chlorides.	Phosphates.	Date of sickness.
1	211·883	788·117	5·665	122·125	83·593	·572	·052	1·970	·271	August 14
2	208·320	791·680	2·280	129·362	76·678	·600	·131	2·893	·380	Sept. 14
		Average	3·972	125·743	80·135	·586	·091	2·431	·325	

Recapitulation.—In summing up the results which may be deduced from these analyses, we will consider the different elements separately, and first :

The Fibrin.—Our results in regard to this element agree entirely with the conclusions arrived at by Andral and Gavarret, in all the diseases that have fallen under our observation, with the exception of albuminuria and purpura. Those of Simon in the first of these, are in accordance with ours.

Globules.—In the same diseases, the changes in quantity of this material are similar to those of Andral. In remittent and typhus fever, we have found, that they follow, in a majority of cases, the laws laid down for the pyrexiæ.

Solids of the Serum.—These, so far as we have observed, are in accordance with the results previously obtained by other observers.

Iron.—In all cases, this salt is found to be in proportion to the quantity of globules, except in purpura, as detailed previously.

Lime.—This element we found to be more variable than any of the others. It was increased in inflammations, acute dropsy, pregnancy, anæmia, and phthisis, where the tubercles were not yet softened ; it was diminished in purpura hæmorrhagica, albuminuria, small-pox, and phthisis, where softening had taken place ; and it remained about its proper standard in acute rheumatism, remittent typhus, and typhoid fevers.

Chlorides of Soda and Potash.—The quantity of these is found, as previously stated, to depend almost entirely upon the particular month in which the patient is bled. In purpura, however, they are much increased, nearly one-fourth; and also slightly, in typhus and remittent fevers.

Phosphates of Soda and Potash.—The changes in these are nearly identical with those of the chlorides, excepting in phthisis. In this disease they are deficient, where the tubercles are crude, and in excess where they have undergone softening.

These analyses have been confined to those inorganic elements only, which existed in a quantity large enough to be estimated with considerable accuracy; and it may be that the salts which have not been considered at all, are the ones which undergo the most important changes: but these principles are so minute in quantity, that it would be almost impossible to estimate them with any degree of accuracy. It may be, that, in different diseases, new principles become developed, which have heretofore escaped our observation; and this has been suggested to us by the fact, that, in estimating the inorganic elements of the blood, we have been frequently struck with the difference of quantity in the amount of the insoluble salts. For instance, in a state of health, the whole insoluble material is found to be just equal to the amount of iron, lime, and phosphoric acid; in acute inflammations the average excess of this insoluble matter over these salts, is ·120; in remittent fever, ·350; in typhoid fever, ·360; in typhus fever, ·378; in albuminuria, ·378; and in purpura, ·495. These materials certainly exert some influence over the peculiar conditions with which they are identical, and we suppose them to be new principles, from the fact that they are only found in specimens of diseased blood.

It has often happened, that two different kinds of blood have fallen under observation at the same time; where the same quantity has been selected, the same process used, and nearly the same results obtained for each. And yet the appearance that the separate principles presented, was very different: in one the albumen would be perfectly white, and in the other, a distinct straw colour; still, so far as we could learn, they were both albumen. And again, on setting aside two equal quantities of blood, the one from typhus, and the other from typhoid, fever, the latter would remain for some days, separate as clot and serum, while the other, in the course of a few hours, had become a diffluent mass, and yet the analysis of those two was found to be nearly the same. We are forced by facts like these, to conclude that ultimate chemistry plays a most important part in the production of disease; and in unravelling the tangled web of pathological hæmatology hereafter, its assistance must principally be relied upon.

In conclusion, we beg leave to return our thanks to Drs. Power and Buckler, and the Resident Physicians of the Baltimore Alms House, for their kindness in furnishing us most of the specimens of blood, whose analysis is herein contained.

Baltimore, Oct. 20, 1847.

ART. III.—*Report on Scorbutus, as it appeared on board the United States Squadron, Blockading the Ports in the Gulf of Mexico, in the Summer of* 1846. By J. M. FOLTZ, M.D., Surgeon U. S. S. Raritan, Late Fleet Surgeon, Brazil Station. [Transmitted to the Bureau of Medicine and Surgery, and communicated to this Journal by THOMAS HARRIS, M. D., Chief Bureau Med. and Surg., U. S. N.]

SCURVY occurred in a most aggravated form, on board a large portion of the squadron blockading the coast of Mexico, during the summer of 1846, and for some months disabled several of the largest and most efficient ships, at a time when their services were required to operate against the enemy. The frigates Raritan and Potomac, corvettes Falmouth and John Adams, the Flirt and the steamer Mississippi, suffered severely, and a few milder cases occurred on board most of the other ships. The disease assumed the most formidable aspect, and prostrated the greatest number of men on board the frigate Raritan and the corvette Falmouth. On board the Potomac, of fifty guns, with a complement of 500, officers and crew, recently placed in commission, and commanded by one of our most energetic and indefatigable officers, the disease appeared in August, assuming so severe a form, that she was compelled to proceed to Pensacola with more than 100 cases upon her sick report, and with symptoms of the disease in most of the crew who still continued to perform their duty. After remaining two months in port, the disease had so far diminished as to enable her to return to her cruizing station off Vera Cruz, where, by a supply of fresh provisions, the crew were restored to good health. The Potomac had a new crew, had recently been in dock—thoroughly cleansed and coppered, and for internal police and cleanliness, was unsurpassed by any ship in the service; yet the scurvy early made its appearance in this vessel, and spread rapidly. The cause of the disease can be clearly traced, and will be pointed out in the proper place.

The Falmouth had been commissioned two years, and had passed this time in the Gulf, and among the West India islands. This ship is well ventilated, and her crew enjoyed good health until invaded by the scurvy. Their long sojourn in an intertropical clime, had prepared them for the reception of the disease, and, like the crew of the Raritan, who had suffered by a similar enervation, when scurvy once occurred, it spread rapidly and was malignant in character. The Falmouth was ordered from Pensacola to Boston, as her crew were completely prostrated, and during her passage round, her only surviving medical officer, Dr. Nelson, represents the condition of the sick and dying as most deplorable. The crowded state of the sick cots and hammocks, the fetor from the ulcers, and the distress of the dying, all contributed to accelerate the course of the disease in those who were already down, as well as to induce it in the few who were still able to perform a small portion of the necessary duty.

The Mississippi steam frigate had been but little at sea. She had been eighteen months in commission: by using steam, her passages at sea were short, and in our protracted and vexatious negotiations with Mexico, during the rejected mission of Mr. Slidell, she was used as a dispatch vessel, making her passages between Pensacola and Vera Cruz in from four to six days, and passing four-fifths of her time in port, where she was abundantly supplied with fresh provisions and vegetables. Yet here the cause, we think, can be clearly and satisfactorily traced. The number of cases was limited on board the Mississippi, and was confined to the commencement of the present war.

The frigate Raritan, of fifty guns, had the greatest number of cases, and was the longest time placed "*hors de combat*" by the scurvy. We served on that ship for more than three years, treated all the cases, and it is to the rise, progress and character of the scurvy, as it appeared on board that ship particularly, and incidentally in the squadron, which we propose briefly to investigate, confining our observations to the bounds of "a report."

The frigate Raritan was placed in commission for the first time, on the 15th November, 1843. Although a new ship in commission, she had been twenty-one years on the stocks; her model was considered one of the most perfect; which opinion her subsequent sailing qualities confirmed. But her internal arrangements, with the accommodations for officers and crew, were all of the very worst character. The hold is exceedingly small, badly arranged, and imperfectly ventilated. The berth-deck is low, with very small air-ports, arranged on the old principle, only allowing to be opened in port, when at anchor, and in the best weather, with small, dark and contracted apartments for the gun-room and warrant officers.

The hatches leading to this deck are small, and so arranged that windsails cannot pass in a perpendicular line from the spar-deck to the berth-deck or hold. The ventilation is therefore very imperfect, and those who are compelled to pass much of their time below, are deprived of light and air.

The sick-bay in the bows of the ship on the berth-deck, and the cockpit, where a mess of officers were living between the tropics, where the thermometer seldom fell to 80°, were both without light and air; apartments which, above all others in the ship, should be abundantly supplied with both. The wardroom was low, dark and dismal, crowded by a mess of fourteen, and lighted by a hatch four feet by three.

We reported for duty before the ship was placed in commission. Upon examination we found that the sick bay was very small, and without a hatch even for the admission of a windsail. The following report was made to the captain, requesting the removal of the sick-bay bulkhead aft, so as to enlarge the bay, and admit light and air into the apartment designed for the use of the sick, which were so essential to their comfort and recovery.

U. S. S. Raritan, 21st. Nov., 1843.

Sir:—The crew of this ship have recently suffered much from pulmonary inflammation, incidental to the season, and in several of them the disease has assumed a most aggravated form. Thirty-one are at this time upon the sick report, and at the Hospital. I am convinced that the severity of the disease in some cases, is owing to the unusually contracted and small space allotted for the sick-bay. In all other frigates, the sick-bay bulkhead is abaft the scuttle for the fore passage. On board this ship it is forward, which not only allows a space quite too small for the sick, but precludes the possibility of admission of light or air.

I would therefore report, as necessary for the health of the ship, and to accelerate the recovery of those who may be ill, *that the bulkhead of the sick-bay be removed abaft the fore scuttle.*

I am, very respectfully, yours, &c.

J. M. Foltz, Surgeon U. S. N.

Captain F. H. Gregory, Commanding U. S. S. Raritan.

This report was transmitted to the proper authority, and the request for an alteration denied, on the grounds that it was unnecessary, and that the present arrangements are good.

On the 30th November, 1843, the Raritan left the Navy Yard at Philadelphia for New York, the ice in the Delaware rendering her departure necessary. There were but 150 officers and men on board. Six days were passed before we reached the Capes of the Delaware; off New York we encountered severe northwesters, with snow and sleet, and we did not reach the Navy Yard at New York before the fifteenth day. The weather was extremely cold during the passage, and when we reached the Navy Yard, the thermometer was down to zero. A bridge of ice soon bound us to both shores. The winter of 1843 and '44 is remembered as one of our coldest seasons, and for a long time after our arrival we were without fires.

Exposure of the crew to the severe cold, and the necessary labor of fitting out ship, kept the number of sick large. Pneumonia and fever of a typhoid type were the prevailing diseases; and all efforts to procure stoves for the ship proved unavailing, until Captain Gregory wrote to the Department, that, "unless stoves were speedily furnished, it would cost the Government more for coffins than for stoves and fuel!" The return mail brought orders to have the ship warmed.

Small-pox made its appearance about this time, and these cases, together with those down with typhus, all exhibited the influence of the vitiated condition of the air on the lower decks of the Raritan, and many of the cases of fever were so bad, that Dr. Ruschenberger, the Surgeon of the Hospital, was apprehensive of its assuming the form of an epidemic; generating in the vitiated atmosphere on the crowded, confined, and imperfectly ventilated decks of the ship.

On the 20th February, 1844, we sailed from New York for Rio de Janeiro. A few days carried us into the Gulf Stream, and in three weeks, we were near the Cape de Verd Islands, where we enjoyed warm sun, pleasant weather, and soft breezes.

How much suffering and disease, and how many valuable lives could be spared, if our ships of war were fitted out in the autumn or spring, instead of midwinter! or, should it be necessary, in time of war, to place our ships in commission in winter, humanity would at least demand that they should be fitted out in a southern port. At Norfolk, our winters are never long or severe; but north of that, ice and cold, and hard labour, have destroyed the life of many a sailor who was proud to serve under his country's flag, and to do the state service; who, labouring in the merchant service, at the same season, would have remained in health and vigour. When a merchant ship is alongside dock, her sailors are near warm rooms and comfortable fires. On board our ships of war it is not so. Cold, damp ships, kept wet in winter, to be kept clean! are the home, night and day for weeks and months, of the sailor. Spirit, which is now abolished from the merchant service, is given to keep him warm, and fuel is thus thrown into the flames which are sure to destroy him. After sixteen years' experience in the navy, during which I have served in all climates and upon all stations, I can say that I know of no means calculated to do so much good to the sailor, both morally and physically, as *the entire abolition of the spirit-ration in the navy.* A large mass of sailors, habitual drunkards, and most of them foreigners, are now to be found on board our ships of war, who come there solely because they are unable to procure their lot of grog on board merchant ships. Intemperance, agreeably to my experience, has increased, instead of diminished, in the navy, from the cause mentioned above. It is to be hoped that early legislation will correct this evil.

Intertropical temperature, repose of some months in the harbour of Rio de Janeiro, and bringing the ship, her crew and officers, into the discipline, order, and regularity which characterize a ship of war on her station, restored the ship to a most perfect state of health. This continued uninterruptedly so long as we remained on the South American station. The average number upon the daily sick report for two years, did not exceed nine, and frequently for weeks together, ranged as low as five. The Raritan visited Bahia and St. Catharine's, and passed many months at Monte Video, at which place the seeds of the disease were sown which we have at present under consideration.

Monte Video had been under a siege of the combined Argentine and Oriental troops, under the command of Ex-President Oribe, while Admiral Brown kept up the blockade at sea, with the Argentine squadron. This siege and blockade deprived the town of almost all necessaries of life; and meats and vegetables could only be procured with the greatest difficulty, and in the smallest quantities, for the foreign ships of war; of which a large number were present, observing the progress of the war.

In July, the combined English and French fleets took possession of the Argentine squadron, established a vigorous blockade of Buenos Ayres, and prohibited all intercourse with the army of Oribe investing the city, from whom the limited supplies, previously furnished to the ships, were procured.

The Raritan, during her last two visits to the Rio de La Plata, was compelled to subsist all hands upon the salt rations exclusively. This subsisting upon salt provisions continued uninterruptedly from the time of leaving Rio Janeiro until our return to that port; nor was this living confined to salt provisions alone, but was accompanied, at times, by the use of the water of the river, taken from alongside the ship; which, notwithstanding it was freshened by violent pamperos, yet contained some saline matter. The quality of the water was not only impaired, but the quantity was at times reduced. On the occasion of these visits, the exigencies of the service were such, that the ship could not return to Rio, where the public depot of stores is kept, to replenish; and many of the most essential articles in the government ration were exhausted; and bad beef, bad bread, and bad water, the latter in limited quantities, were the provisions on which both officers and men were compelled to subsist.

The number of sick augmented monthly from these causes, combined with the enervating effects of a hot climate. There are but few places in the world where the thermometer has a higher range throughout the year than in Rio—and nowhere are the summer months (December, January, and February), more oppressive. From the records of twenty years' observations, the mean annual temperature is 79°, that of the summer, 86°.

The imperfectly ventilated condition of the lower decks during this protracted hot weather, with the vitiated condition of the atmosphere, induced by the bilge water and crowded decks, contributed to augment the tendency to disease induced by salt food.

Recommendations were sent in, to enlarge the wardroom-hatch, so as to admit light and air. Our minister at Rio Janeiro, Mr. Wise, who has in all positions taken so active an interest in the prosperity and condition of the Navy, was so forcibly struck with the imperfect arrangements on board the Raritan, and of the oppressive condition of the air on her lower decks, that he, unsolicited, used his personal influence with the Commodore to have these hatches enlarged. The following is a copy of our recommendations for this alteration:

U. S. S. Raritan, Rio de Janeiro, Oct. 8th, 1844.

SIR:—We, the undersigned, Wardroom Officers of the ship, respectfully ask to call your attention to the condition of the wardroom of this ship.

This apartment, in which thirteen officers and their servants are obliged to live, is almost entirely without light and air, and at sea, when the air-ports are caulked in, is almost uninhabitable.

The only hatch to the wardroom is covered by the spar deck, and is but four feet one inch in length, and three feet wide. We are under the necessity of using candles at all our meals, and we at all times suffer from want of ventilation.

The warm weather now approaching, will render this apartment insupportable. We therefore respectfully, but urgently, request, that you will be pleased to have the present hatch extended to the hatch leading into the steerage, which would give us light and air.

We are, respectfully, &c.
(Signed by all the Wardroom Officers.)
To Com. DANIEL TURNER, Commanding U. S. Squadron, Brazil Station.

U. S. S. Raritan, Rio Janeiro, Oct. 8th, 1844.

SIR:—I respectfully recommend the above alteration, as necessary to the preservation of the health of the officers and crew of this ship.

I am, respectfully, &c.
J. M. FOLTZ, Surgeon of the Fleet.
Com. DANIEL TURNER, Commanding U. S. Squadron, Brazil Station.

Commodore Turner was fully convinced of the importance of this change, and was most desirous to have it effected; but the orders from Washington, upon the subject of any alterations in the interior of ships, are so stringent, that he was unable, without a direct disobedience of orders, to carry his own and our wishes into execution.

These inconveniences were all submitted to with the utmost cheerfulness. Officers and crew combined to make a "jolly cruize," and few men in life pine less over cares, inconveniences, and misfortunes, than those whose life is passed upon the deep.

The Raritan had been fitted out for a two years' cruize, that being the time limited by the Department; and these two years had now nearly terminated.

On the 3d of February, 1846, we sailed for home, via the West Indies, with the sick and invalids of the outward bound East India and Pacific squadrons, on board; and, after a monotonous and tedious passage of 43 days, we reached Pensacola, where the sick were transferred to the hospital. The number of sick, during the passage home, was large, notwithstanding the cheerfulness of the crew. All on board were predisposed to disease, by the two years' confinement to the ship and hot weather we had just gone through.

At Pensacola, light hearts and smiling faces were changed by bitter disappointment.

The Raritan was ordered, with all possible dispatch, to proceed to Vera Cruz, in consequence of our difficulties with Mexico. In a few days, Captain Gregory reported to Commodore Conner, and we now constituted part of his squadron.

There was no intercourse with the town, and all hands were again restricted to the use of salt provisions. The crews of the squadron were frequently exercised at their guns, and the crew of the Raritan, who were perfect at their quarters, and made so by much practice, were kept as long at their labour in the hottest weather as the crews of ships recently placed in commission, and who had much to learn.

May 4th, the squadron sailed to render assistance to General Taylor, who, the Commodore had learned, would be attacked by the Mexicans. We reached Point Isabel at daylight on the 8th, and immediately proceeded to land seamen and marines to assist in the defence of the place. In four days the force re-embarked, the enemy having retreated with precipitation after their disastrous defeats on the 8th and 9th. On the 17th May, the Raritan sailed for Vera Cruz, with orders to enforce a strict and vigorous blockade upon all the Mexican ports, as far south as Alvarado. These orders were enforced, until the Raritan was compelled, by the prostration of so many of her crew with the scurvy as to disable her, to proceed to Pensacola.

During the month of April, a large number of the crew were admitted upon the list with rheumatism, the pains being chiefly confined to the lower extremities. After some days, the subjects of these cases became affected with swollen and bleeding gums, great fetor of the breath, and maculæ and the purpura scorbuticæ, which were not confined to the extremities, but also invaded, from the commencement, the body and face. These symptoms at once revealed the true character of the disease, and we found that scorbutus had seized upon us, in a form unknown in our national marine since our last war with Great Britain.

The increase in the number of cases was very rapid, from eight to ten new ones being daily admitted on the sick report; and by the 1st of June, sixty cases had been under treatment. A liberal use of the acids on board ship, with a small supply of fruits, procured through the kindness of the British and French squadrons, speedily gave relief to the patients under treatment; but the new cases daily presenting, kept up the number of sick, and gave the disagreeable assurance that the whole crew were contaminated; and that nothing but a liberal supply of fresh provisions could avert the evil.

During the month of June, nearly one hundred new cases reported for treatment, while most of those who were first seized, and were temporarily relieved by treatment, returned again to the sick bay with a new class of symptoms, presenting the disease in a more aggravated form than it had first assumed.

A report was submitted requesting a medical survey upon the condition of the crew, and recommending that we should proceed to some convenient port for fresh supplies, fruits and vegetables.

The surgeon of the fleet made this survey, and concurred in the recommendation.

1st of July, the Raritan sailed, in compliance with this recommendation, to the River San Martin, sixty miles to the southward of Vera Cruz, where, it was represented, all the necessary supplies could be readily procured. Good and pure water was found in abundance, but this was the only article we could get. The few natives who reside in the forest near that part of the coast, kept themselves carefully concealed, and while watering ship we were not able to open any intercourse with them. By the 10th of July, we again joined the fleet before Vera Cruz, with the scurvy raging in a much more aggravated form than when we sailed. Those under treatment had grown much worse, for the want of proper remedies, while the increased labour and exposure of the crew in watering ship on an open coast, developed many new cases in its worst forms.

The Raritan, which had been so efficient a ship for two years, beating all other ships of war in reefing, furling, and in all her evolutions, with her efficient and powerful crew of young men, was now barely able to navigate the ocean. For all purposes of war she was placed "*hors de combat.*" More than two hundred cases of scurvy were under treatment, and but few of those who were on duty were free from all symptoms of the disease. The character of the epidemic was directly opposed to other epidemics which we had encountered in the malignant disease met with in other parts of the world.

The infirm and broken-down landsmen, boys who had never been to sea before, and the marines, whose constitutions and habits had not yet been inured to the vicissitudes, exposures and privations of sea life, are, in the East Indies and on the coast of Africa, the first to suffer, while the robust and hardy seamen enjoy a comparative immunity. The scurvy, in its devastations on board the Raritan, reversed its march. The more vigorous, robust and plethoric the constitution, the more industrious and active the man's habits, in the same ratio were the liabilities to the attack, and the violence of the disease. At a time when the sick report was comparatively small, the most efficient of the crew were disabled, embracing those whose services could least be dispensed with, and whose duties were but imperfectly performed by others. These were the captains of tops, quarter-gunners, quarter-masters, boatswains' mates, the holders, and the strong and iron-framed seamen of the forecastle.

A large majority of these men had never been on the sick report during the cruize, and when first seized, attributed their pains to slight catarrhs, and did not, from a laudable ambition to do their duty, report themselves, until the disease was far advanced, and they were completely disabled. If there was any class of the men specified above who suffered more than the rest, it was the holders; not one escaped symptoms of the disease, and the first and second captains of the hold were among the worst cases. Both narrowly escaped with their lives, and for weeks it was doubtful if they would live from day to day. When this class of the ship's company found themselves racked with pains, covered with ulcers, and daily sinking, from being subordinate and obedient, they became the most clamorous and unruly. Many of them had fulfilled their part of the contract with the government. Their three years' service, for which they had shipped, had expired; they had seen much arduous service at sea; and they were now suffering from a disease which could only be cured by returning to port, where they desired to be discharged.

Another medical survey was called; and held by the fleet surgeon, by orders of the commodore. The report recommended that the ship should proceed to a northern port without delay. On the 17th July, the Raritan sailed from Vera Cruz for Pensacola, with more than two hundred cases of scurvy on board, and a large number of the crew with premonitory symptoms, who remained on duty, assisting in the navigation of the ship.

On the 24th, arrived at Pensacola, and eighty of the worst cases were immediately transferred to the U. S. Naval Hospital on shore. Fresh meats, vegetables, and fresh bread were freely served out to all hands, and so soon as sufficiently well, liberty was given to them to have a run on shore; all rapidly improved on board, and by the 15th of September the Raritan again put to sea, enabled to resume her duties in blockading the enemy's coast.

Symptoms.—The premonitory symptoms were almost as various as the number of cases. As we have already observed, the first cases were admitted upon the report with rheumatism. The lassitude and indisposition to muscular exertion, which ordinarily usher in this disease, did not occur—there was a disposition to labour, frequently indulged to such an extent as to add to the severity of the disease. The pains were confined chiefly to the lower extremities and their articulations; were constant;—not presenting the usual exacerbations at night which ordinarily characterize rheumatism,—neither were they accompanied by pyrexia. The pulse was soft and natural, respiration easy; but the temperature of the cutaneous surface was below the normal standard.

The next symptoms in the order in which they presented, were sponginess and bleeding of the gums, with ulceration, which in some cases advanced so rapidly, that the teeth fell out early in the disease. There was great fetor of the breath, and ulcerations of the mucous membrane extending into the fauces. The inability to masticate, and the want of adaptation of the only food remaining (salt provisions) to the cases, induced rapid emaciation and exhaustion; and, it was not until then, that languor and lassitude took such complete possession, that the sick were incapable of making the slightest muscular exertion. This prostration was accompanied or speedily followed by great difficulty in respiration, as if there was a heavy weight on the chest, which produced, on an effort to move or converse, a sensation of faintiness or suffocation.

Œdema of the lower extremities was next in order of frequency; commencing at the ankles, it gradually extended, and in some cases there were puffiness in the face and general anasarca. Deep pits would frequently remain after pressure over the course of the tibia, before there were any indications of effusion to the eye. In one case, the captain of the mizen top, a young and active man, it terminated in ascites, from which he died at the Pensacola Hospital; and hydrothorax was the termination in a number of the invalids.

Where œdema existed, the countenance was bloated, and had a dull, lead-coloured appearance. The skin was cold and clammy to the touch, the urine was scanty and turbid, the alvine dejections small and irregular; while the patient complained much of pain and uneasiness in the bowels. In the milder cases, among that portion of the crew who remained on duty during our passage to Pensacola, almost universal œdema appeared. It was a common practice among these men, to amuse themselves by collecting in groups, and trying upon their own limbs who could make the deepest indentation with their fingers; and he whose indentation would be deepest and remain longest, while yet on duty, was considered the hero among his shipmates. Such are the expedients that sailors resort to at sea to sustain each other in an emergency, and to find amusement in their many weary hours! These effusions were among the first symptoms to disappear under treatment, or after our return to port; yet, upon a suspension of medicines and fresh diet, they would invariably return, in an aggravated form, and accompanied by other symptoms.

Macula or purpura scorbutica was, next to œdema, the symptom in order of frequency, while in the order of severity it should stand first in the catalogue. Deep brown and liver-coloured blotches, varying in size from the point of a finger to the whole extent embraced from the knee to the foot, or involving the whole of the inside of the thigh, were found in many cases on the patient reporting sick. This effusion of decomposed blood in the cellular tissue, sometimes presented the appearance of small petechia or flea-bites extending almost over the entire body. It was unaccompanied by itching or pricking. Urticaria had been very prevalent on board ship since our arrival in the Gulf, among both officers and men; in many it was so severe that it prevented sleep for many nights in succession, but was not attended by any other disagreeable symptom. In no case did this nettlerash produce any aggravation of the scorbutic maculæ, so far as we could trace their existence in the same individual.

These maculæ did not always appear first on the inside of the lower extremities. The arms and face were not unfrequently the seat of the invasion, while the chest was the last to suffer. In one case, a petty officer, the captain of the maintop, presented himself with his face exhibiting the appearance of having been washed with diluted ink, or some dark colouring matter. My attention was called to the case by Dr. Potter, the medical gentleman on duty with me. The patient, Johnson, felt perfectly well, had performed his duties aloft all day, drank his grog, and still felt well enough to go aloft. For ten days his feet had been swollen, and his gums sore, bleeding upon slight pressure, but his energy and spirits had never flagged, and he had only reported to the doctor because he had suddenly turned "bloody black" in the face. He was cheerful, and desired much to return to his duty, which was not allowed. The following day he was a prisoner to his cot; the purpura appeared on the extremities, the gums and mouth were much worse, while severe pains racked every joint and limb.

This discoloration extended in several cases from the groin to the tip of the toes, involving almost the entire surface. In one, which will be noticed more at length, both lower extremities assumed an almost black appearance; the feet and legs became hard, indurated, and almost insensible to the touch, threatening that species of dry gangrene frequently met with in the hospitals of Europe, but which we have never encountered in this country. This patient exhibited from the commencement a pale and sallow aspect, was languid and exhausted, and incapable of any corporeal exertions. This discoloration of the skin was first to show itself in old cicatrices and injuries, and in the worst cases, these were disposed to ulcerate. These cicatrices were also the last to return to a healthy condition, retaining the evidence of the disease, long after the adjoining tissues had lost every trace of it. The colour varied much in different cases, from a light scarlet erythema to that of deep purple, almost black.

Purpura frequently presented itself in cases unaccompanied with other symptoms, where the individual was still able to perform some duty; but all those cases subsequently assumed a more grave and severe character, and required a more active and prolonged course of treatment, than in such cases where this symptom was not encountered.

Ulcerations were not very frequent, but where they did occur, or had already existed, they in every case proved extremely obstinate and intractable. They assumed a rapid disposition to extend, accompanied with a copious discharge, at times very offensive, and having an indolent and flabby surface, which all local applications failed to change into a granulating surface. Where these ulcers occurred in cases with cutaneous discoloration, they invariably assumed the worst aspect, spread with great rapidity, burrowed deeper, discharged more copiously, and not only were more difficult to heal, but also, by the drain which they opened to the system, accelerated the approach of collapse, from which recovery was difficult.

The slight petechiæ mentioned above were in some cases converted into small ulcers, which ultimately spread and ran into each other, occasioned by the patient irritating and scratching them, though they did not itch.

Nyctalopia occurred in five, and hemeralopia in two cases. One case of the latter was so bad, that the patient could not move about the even decks, with which he was perfectly familiar, without the greatest difficulty. There were other affections of the eyes, owing obviously to this scorbutic diathesis, such as inflammation of the conjunctiva, induration and irritation of the ciliæ, accompanied with a copious acrimonious discharge. The usual collyria were used without any benefit, and the eyes improved or became worse, in proportion to the arrest or progress of the scurvy ; and ultimately as the disease was eradicated, the ophthalmic affections permanently disappeared. Nyctalopia is a very common symptom of morbus maculosus Werlhofii, or the land scurvy, a disease we found, from some experience of it among our troops, to be totally different from that under consideration. In their symptoms, there is, in the early stages, a slight assimilation, but as they progress, in their pathological character they are perfectly dissimilar. Among the troops employed in Florida during the Seminole war, the morbus maculosus committed extensive ravages. Nyctalopia was a common symptom; some thirty cases of the disease occurring among the marine corps, co-operating with the army, were transferred from the field to the Marine Hospital at Washington then under our charge. These cases, as well as a number we witnessed at Point Isabel, in May, in the forces engaged under General Taylor, were totally distinct from the scurvy as it occurs on board ships at sea. Purpura, œdema, the cadaverous and fetid effluvium which follows the extreme emaciation, the fainting upon the slightest exertion, and the extent of disease in the respiratory and circulatory systems, which always occur in the scurvy on board ships, are never met with in the land scurvy. In the latter, we have sponginess of the gums, ulceration which terminates in dysenteries and fevers, the first induced by a cachectic diathesis, but never involving that complete anemia of the blood, which amounts to a universal septic tendency.

The symptoms of the disease, as they appeared on board the Raritan, varied materially from such as are laid down in books. Lassitude and indisposition to muscular energy were not among the symptoms which ushered in the disease ; there were generally great activity and not unfrequently cheerfulness, good appetite and sound sleep at night, for weeks after the teeth were loosened, the gums ulcerated, the limbs œdematous and discolored. The nervous system was among the last to be invaded, and then it was not "an indisposition to corporeal exertion," but an actual disability. The countenance became pale, languid, cadaverous, the respiration oppressed, irregular, and the pulse, feeble, fluttering, intermittent, simultaneous with this muscular prostration. Slight efforts to turn, sit up, or move about, were followed by tremors and syncope. When this class of symptoms set in, the strides of the disease were rapid, everything indicating without speedy aid, an early fatal result.

In every case where the disease was so far advanced, the respiratory system was much involved. There was also a manifest reduction of the temperature of the body in every aggravated case. In two cases well-developed symptoms of angina pectoris presented, and the paroxysms were accompanied with the most distressing pains in the chest and arms. The patients themselves expressed the greatest apprehension of instant suffocation. Both these cases recovered from this angina, on their transfer to the hospital, but when we last saw them, their emaciated and tottering frames gave the incontestable evidence of permanently impaired constitutions.

There were but two classes of symptoms which made such irreparable inroads on the constitution: from all the other symptoms the health became again perfectly restored; these were the oppressed, laborious and difficult respiration, the other irregular, obstructed and imperfect action of the heart. Paroxysms of dyspnœa were frequent in those cases; the inspirations were short and rapid, and performed chiefly by the action of the intercostal muscles, and were performed with much labour by the patient, imparting to the countenance the impression of suffocation, accompanied by palpitations which compelled the patient to sit up. The contractions and dilatations of the heart were irregular, at times intermitting and indistinct, with a great sense of anxiety in the precordia. In the midst of these symptoms the pulse was scarcely perceptible at the wrist, the extremities were cold, and the countenance assumed a leaden hue; auscultation, so far as practicable on board a crowded ship of war, gave us but little aid in detecting the character of organic derangement. In several cases the sounds emitted were those of hypertrophy; but the number of these cases were limited, compared with the indications of atrophy and diminution of the cardiac functions.

Febrile symptoms never supervened until after the development of these symptoms, involving the functions of the heart and lungs; after that, they were invariable. There were slight rigors or a mere coldness of the surface, in some cases, before the pyrexia developed itself. In most cases, even these were not observed. The pulse never became full and strong, but was small, frequent and corded, the skin warm and pungent (calor mordicans). The urine was small in quantity and high coloured. The bowels were readily influenced by small doses of aperients, the dejections being small and not unnatural.

The febrile paroxysms, which were always slight, assumed the character of double intermittents, there being two exacerbations and remissions within the twenty-four hours, and never were met with, as has been before observed, until the advanced periods of the disease. In this stage, fever rapidly assisted to exhaust the feeble forces still remaining, and notwithstanding it was so slight, that, in other conditions of the system, it could have produced but little injury, it here speedily prostrated the patient, from which prostration but few permanently recovered.

The fortunate arrival of the Raritan in Pensacola, at the very moment when the scurvy was putting on its most ghastly aspect, saved the lives of many, but left them for the future with impaired constitutions.

Sixty-four of these unfortunate cases, embracing most of our petty officers, were left in the hospital at Pensacola on our return to Vera Cruz, few of whom will ever again be restored to health and strength. A number of them, after lingering for months, we learn, died at the hospital, notwithstanding the possession of every comfort, and the zealous attentions of that distinguished physician and universally respected man, Dr. Hulse, the surgeon in charge.

In the enumeration of the symptoms of scurvy, it will be observed that they divide themselves into two distinct classes. While suffering from the first, the patients were able to eat their ration, or at least a portion of it, drank their grog, were lively, industrious and cheerful, and most unwilling to apply for medical treatment. This stage would last from several weeks to as many months, the disease being warded off by occasional small supplies of fruit, vegetables or fresh meat. In the second stage, cheerfulness and hope had fled, leaving pain and despair. Loathing of food, loss of rest, inability (not disinclination) to stir or move without fainting, palpitations, and a sense of suffocation; while the rapid decay of the body, the cadaverous putrid odour, and the Hippocratic countenance, gave but too unfailing testimony of the near approach of death, unless relief was speedily obtained. On board the Falmouth, during her passage from Pensacola to Boston, Dr. Nelson informs us that cases of this character were numerous. In his own language, although he had selected the medical profession from his own choice, had studied and practiced it with pleasure, yet so loathsome and offensive were his duties among the sick and dying with scurvy, that the recurrence of similar scenes would drive him from the service.

From a large number of cases on our note-book, we will abridge three, as illustrating the various forms which the disease assumed. In the first, œdema, effusions and petechiæ terminating in ulcerations, occurred; in the second, universal purpura of the inferior extremities, terminating in dry gangrene; in the third, the lungs and heart were invaded in the worst form, from which the patient was for a time revived, but the case ultimately terminated in death.

Case I.—Edward Brandis, musician, aged 45, of a robust and sanguine temperament, had been in uninterrupted good health for more than two years, was admitted on the sick report on the 29th of June. When off Point Isabel, in May, first experienced scorbutic symptoms, œdema of the feet and ankles, which disappeared on an acid treatment, with occasional use of fresh animal food. Within the last few weeks, this effusion again returned, and is now so extensive as to interfere with his walking about deck. The feet, ankles and legs are greatly distended with a puffiness and fullness about the eyes, showing a disposition to anasarca. The arms and legs are covered with numerous petechiæ, resembling flea-bites; many on the legs are opened or covered with a small scab, produced by the patient's rubbing and irritating them. His general health never was better; his appetite is good, sleeps well, and is of a most cheerful and contented disposition. He says, that he is heavier in flesh at present than he has ever been before, weighing nearly two hundred, with all the activity and strength of his youth. The gums are but slightly affected; and give him no inconvenience.

By the 5th of July, the symptoms had all increased in severity; the effusion was more extensive, and the ulcerations of the petechiæ increasing in extent, with a more copious discharge. On the 10th, the progress of the disease was still more obvious, although he had been on the shore on the 6th and 7th, with the parties employed in watering ship at San Martin. He passed both these days much to his delight, bathing in a pleasant mountain stream, which he felt convinced would cure him. In this he was much disappointed, as severe pains in the muscles and bones were felt for the first time after these bathings. Day after day, the effusions in the extremities continued to augment; the ulcers became more extensive and more numerous, with indolent, unhealthy surfaces, discharging freely. The pains in the legs increased to such a degree, that the patient was only able to move after much exertion. This increase of the symptoms, for which he was admitted on the sick report, was not followed by any involving other organs. Digestion continued good; the respiration was unaffected; he was able to make the strongest exertions in playing upon wind instruments, while the pulse and heart continued normal. In this condition he was transferred to the hospital on the 25th of July, with his legs enormously enlarged, and covered with troublesome ulcers. His spirits never flagged, and he never was more cheerful. At the hospital, as on board, he continued to amuse his fellow patients, the officers and their friends, with his guitar, on which he excelled. The transfer to the hospital, where all were abundantly supplied with everything they so much required, was followed by a speedy convalescence.

While still in a debilitated condition, Brandis, like a majority of his shipmates at the hospital, no sooner was freed from the scurvy than he was seized with the epidemic (pernicious fever) which raged so severely at Pensacola during the past summer. He, however, ultimately recovered.

Case II.—Birdsy Curtis, holder, aged 26, tall and slender, of a lymphatic temperament, had been stationed for many months in the ship's hold, where, in consequence of being deprived of light and air, he had become blanched and etiolated. His constitution had never been robust, yet he had enjoyed good health throughout our cruize on the coast of Brazil. He reported himself sick on the 5th of July, at the time presenting a most miserable and exhausted aspect. He was much emaciated, and for several weeks had been bleeding freely from the gums, most of his teeth being loosened. He declined to report himself as sick earlier, as he expected the ship would proceed to port, and he felt sufficiently well to assist at his duties. Upon examination, his legs were found discoloured on the inside from the knees to the toes; the muscles were almost completely wasted away; his gait was weak and tottering. Severe pains in the muscles and bones racked every part of his frame; his breathing was oppressed and difficult, pulse small, soft and intermitting, and the temperature of the whole body some degrees below the healthy standard. The discoloration extended round the leg, and along the whole length of the inside of the thighs, while it also assumed a darker hue, enveloping toes, feet and legs, as perfectly as a stocking, after the lapse of a few days. The prostration and inability to move also increased, and by the 12th, he was unable to leave his cot. Purpura now appeared on the inside of the arms; the gums were deeply ulcerated, breath fetid, eyes sunken, and countenance ghastly. Respiration was attended with severe pain in the chest, and oppression. The pulse became more feeble and shattered, while a slight but constant irritative fever rapidly contributed to exhaust the patient. The toes and feet were now the first to put on the form of dry gangrene. They became hard, immovable, cold and black. This appearance extended daily, accompanied with much pain, until the ankles, legs and knees of both sides were involved. So rapid was its progress, that it had reached this extent on the 14th of the month. Skin, cellular tissue, muscles, tendons and ligaments had all simultaneously assumed the hardness and sensation to the touch of wood, at the same time that they were cold and black. The irritative fever could not be subdued, while the pains, ulcerations, exhaustion and fetor, indicated certain and speedy dissolution.

On the 15th, Curtis was transferred, with much suffering, to the steamer Princeton, bound to Pensacola. On board the Princeton, fresh provisions were comparatively abundant. Meats, fruits and vegetables were used externally and internally, which kept the miserable sufferer alive until his arrival at Pensacola, after a short passage of four days. He was immediately landed, and while being carried from the landing to the hospital, he fainted in his cot; those in charge of him believed him dead. For some days after his arrival, it was doubtful whether he would live from day to day. Milk, acids and fruits were freely administered, while his blackened and insensible legs were frequently rubbed with lime juice, and enveloped in scraped raw potatoes.

After the sixth day, the irritative fever began to subside, the pain and difficult respiration abated, while the pulse became more natural. This improvement was slow; at the end of three weeks, he was able to take food with some appetite, was free from pain when kept quiet, and slept soundly at night. His gums ceased to bleed, and the fetor from mouth and body had disappeared. From this time he continued gradually to improve, but not with rapidity. Six weeks after his admission into the hospital, when I last saw him, his toes and feet, with the integuments and muscles as high as the knees, still retained the hardness and sensation to the touch of wood. He was then able to move about his ward with the aid of crutches, while the deep-seated muscles and tendons moved in their indurated envelopes of hardened tissues, without producing the slightest fold or wrinkle, just as the foot moves in a wooden shoe. He was then cheerful and improving, but when last heard from, he had not sufficiently recovered to accept his discharge, although more than three months had elapsed.

Case III.—Robert Emmett, seaman, aged 30, had suffered from soreness and bleeding of the gums for six weeks, before he was disabled from performing his duty. On the 25th September, was admitted upon the sick report, suffering from the most severe pain in the chest, accompanied with a sense of suffocation, unless elevated. The action of the heart was turbulent and oppressed, with an expression of the countenance apprehensive of immediate suffocation. The surface and extremities were cold, with a pulse scarcely perceptible.

Up to the period of his admission, he had enjoyed excellent health, felt well and cheerful; there were no macula, discolorations, effusions or pains in the extremities. His digestive and assimilative organs were apparently unimpaired; the only evidence exhibited of any morbid action going on in the system, was confined to the slight tenderness of the gums, which were not sufficiently severe to oblige him to apply for assistance. On this day he had been taken suddenly so ill, that he was incapable of making any exertion; the symptoms were not unlike those we meet with in the last stages of pneumonia combined with pulmonary congestion. On the second day, all the symptoms were more aggravated; the gums were ulcerated and offensive, the teeth loose, the countenance more haggard and distressed, while the respiration was short, hurried, and laborious. At times there were severe palpitations of the heart, while its actions were intermittent and irregular. The skin was cold, clammy and exsanguious, without any tendency to ulcerate or discolour. The necessary efforts to move in his cot, occasioned severe pain in his extremities, accompanied by exhaustion or a disposition to syncope. The seat of his greatest suffering was in the chest. There was not the acute pain which indicates pleuritis or recent pneumonia, but a sense of weight and constriction which appeared to threaten suffocation, and which gave to the features the expression of great fear and anxiety. There was great loathing or inability to take food or drinks, with constipation, and a small secretion of high-coloured urine.

He continued to sink rapidly, with exhaustion upon the slightest efforts, while the breath became more offensive, and the expression more cadaverous. The muscles and integuments on the lower extremities now assumed a more unnatural appearance; they felt cold, clammy and doughy. Upon being pressed aside or pitted, they did not again return to their natural position. This was not owing to effusion, but to a change in texture or vitality in the parts, which had deprived them of their natural elasticity. The skin and muscles looked as though ready to drop from the bones. In this condition he was transferred to the hospital, where, by diligent, careful and able professional attention, after much suffering, there was some improvement. His limbs were kept enveloped in fresh vegetable acids, while those articles most required were administered at frequent and short intervals. With much nursing his life was prolonged, but he never recovered. When improving, his indulgence brought on a severe attack of disease under which he died.

Cause.—The preceding history of the scurvy on board the Raritan, renders the cause of the appearance and extension of the disease on board that ship sufficiently obvious. It was there shown, that the hold and berth deck were imperfectly ventilated, during two years' cruizing between the tropics. The ship was kept much of her time in ports, where fresh meats and vegetables could not be procured, while upon her South American cruize, and after her period of service had terminated, when the time for which most of her crew had shipped had expired, a second still more arduous duty devolved upon the crew, in consequence of our being involved in a war. During a period of three hundred days, the ship's company of the Raritan had fresh meats served to them but nineteen times, and then, with but a small quantity of indifferent vegetables. The occurrence of scurvy, under these circumstances, in a warm climate, where the crew were frequently exercised at their guns, with at times on allowance of water, was not a subject of surprise. It is, indeed, more surprising, that the disease did not manifest itself sooner, and that there were not more fatal cases. Its long latent condition, the few fatal cases, and the speed with which it was eradicated from the ship, were all owing to the regularity of living and the police which are enforced on board ships of war. The same disease, under the same circumstances, on the crowded decks of merchant ships, between the tropics, would doubtless have assumed a dreadful form. Our merchant whaling ships are the only vessels in which scurvy prevails to any extent at the present day. These ships continue for many months at sea, and when in port to refit, remain but a short time. In many there is but little regard for personal cleanliness, and the ships are frequently very offensive. On board these whale ships, we have seen scurvy in its worst forms, but it always occurred in vessels where their universal anti-scorbutic, fresh potatoes, had been exhausted for some time. So long as these lasted, the disease never made its appearance.

Salt beef and pork, which constitute a portion of the daily ration of the seamen at sea, when long preserved, lose their nutritive qualities, and in proportion to the time they are kept, become unwholesome and innutritious. The navy being furnished with these articles by contract, they are often long kept, and nearly spoiled before they are served out. When new beef and pork are delivered to the government, in a sound and wholesome state, they are carefully stowed away until the old stock on hand is consumed; by which time, the new has reached the same condition as that which was nearly in a state to be condemned, if surveyed. The crews of our ships abroad are thus almost constantly eating old provisions, an evil which cannot be well avoided, unless, by the more abundant supply of fresh meats on all foreign stations.

The recent change in the navy ration, which furnishes salt meat every day in the week, instead of allowing one day, as heretofore, in which no animal food was served out, has apparently increased the disposition to scurvy on board our ships of war. Agreeably to the last accounts from the East India squadron, the scurvy had made its appearance on board the U. S. ship Columbus, then at the Sandwich Islands. We served on that station and in the Pacific some years ago, under the former ration law, when on Fridays, sailors lived upon vegetables alone, and although the ship to which we were attached was eleven months out of thirteen, actually under way at sea, yet the scurvy did not make its appearance. It is a most useful regulation on board ship, to have vegetables alone served to all hands at least one day in the week.

The appearance of scurvy among the crew of the Potomac recently placed in commission, with an excellent police on board, would be a subject of surprise to those not familiar with the circumstances which led to it. We served for three years on board that ship, at sea, and consequently know her well. In every respect is she a sister ship to the Raritan. In tonnage and in the internal arrangements, by which the berth deck and hold are very low and imperfectly ventilated, they are precisely similar. The apartments of the officers are small, without light, and with very small hatches communicating between the berth and gun decks.

From the day of sailing from the dock-yard, up to the time of her arrival in Pensacola with the scurvy on board, salt provisions only were served out, and both the beef and pork had been long kept before using. The beef particularly was much deteriorated, and much of it, as was also the case on board the Raritan, was condemned by a survey of a board of officers, as unfit for use. Dr. Dodd, the experienced surgeon of the Potomac, attributed the unwholesome, indigestible qualities of the meats on board the P. to the quality of the salt used in the curing of the meats; a subject to which no attention has heretofore been directed, and the great importance of which must be obvious to all. It is to be hoped that in furnishing supplies, this will be attended to by the inspecting officers.

The Falmouth, corvette, on which the scurvy appeared with so much severity, had been two years in commission, and the ship herself, as well as the crew, became diseased by long exposure to hot weather, cruizing between the tropics. In this respect the Falmouth and Raritan were similarly situated; both ships had been long at sea, exposed to a burning sun, with their ships' company long confined to salt provisions, while the ships' holds had not been thoroughly broken out and ventilated. Our ships of war in this respect labour under many disadvantages. A merchant vessel is broken out to the kelson, thoroughly cleaned and ventilated every time she enters port, while this cannot be perfectly done in our public ships, until the termination of her cruize of three years. The causes of scurvy in the squadron employed in the blockade of the Mexican ports in the Gulf, during the past summer, may all be summed up in a few words. Protracted cruizing between the tropics, unwholesome and innutritious salt provisions, vitiated atmosphere on board resulting from imperfect ventilation; at times, a reduction in the quantity of water; and, in the crew of the Raritan, the despondency and disappointment resulting from being kept on board ship after the expiration of the period for which many of the crew had shipped.

Pathology.—The humeral pathologists, in placing the primary seat of this disease in the changed condition of the blood, on which the subsequent morbid change of the solids is dependent, come nearest, in our opinion, to a correct view of the pathology of this disease. The only careful analysis of the blood of scorbutic patients, that has fallen under our notice, is that of Dr. Busk, the surgeon of the Dreadnought Hospital ship, moored off Greenwich Hospital, and where more recent cases of diseases among seamen are treated than in any other institution. This liberal charity is free for the admission of sick seamen from all nations, and is supported entirely by private donations. During a visit on board, several years since, we found a number of American seamen comfortably provided for. Almost every government of Europe, we learned, was among its contributors, even those without a marine, while the United States, the citizens of which are constantly receiving its benefits, does not contribute towards its support. On the occasion of our visit, cases of scorbutus were under treatment, and among them were two terminating in dry gangrene of the lower extremities, analogous cases to that of Curtis, detailed above. The analysis of the blood, made from three well-marked cases brought for treatment to the Dreadnought, is as represented in the following table.

	1	2	3	Healthy blood.
Water - - - - -	849·9	835·9	846·2	788·8
Solid constituents - -	150·1	164·1	153·8	211·2
Fibrin - - - - -	6·5	4·5	5·9	3·3
Albumen - - - - -	84·0	76·6	74·2	67·2
Blood corpuscles - -	87·8	72·3	60·7	133·7
Salts - - - - -	9·7	11·5	10·9	6·8

"These analyses are sufficient to disprove the general notion that in this disease the corpuscles are dissolved in the serum. In the blood taken from these scorbutic patients, the separation into serum and clot was as perfect, and took place as rapidly, as in healthy blood. In two of the cases, the clot was buffed and cupped."

The observations made on the blood on board the Raritan corroborate the above experiments, the separation of the blood into clot and serum being rapid and perfect; but the clot was small.*

Animal chemistry promises not only to reveal the true nature of this disease, as well as of many others, but also to furnish us with means to guard against it, and effectually to remove it after it does occur. Liebig and Simon have clearly proved, that, when the oxides of protein predominate in the blood, or that when they accumulate in any part of the system, that general or local inflammations are the certain results. The false membranes which form on the mucous and serous surfaces, are found by analysis to be composed of oxidized protein. Inflammation is combated by endeavouring to diminish the quantity of tritoxide of protein, and to hinder its formation in the lungs. Venesection and purgatives have this effect, and hence their efficiency in the treatment of inflammatory diseases. An opposite condition of the blood obtains in scurvy.

Spanæmia or poverty of the blood, in which the amount of fibrin and of

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[* These observations are further confirmed by the recent analyses of scorbutic blood by MM. Becquerel and Rodier, and by M. Andral. The blood, in these cases, so far from presenting the state of dissolution usually described, coagulated firmly, and the fibrin was found generally to exceed the physiological mean, never to fall below it. See *Quarterly Summary* of this Number.—Editor.]

corpuscles is diminished, while the proportion of water is higher than in the healthy state, is the condition in which the blood is found in this disease. The impropriety of blood-letting under those conditions is so great, that venesection must be carefully avoided, and but few opportunities are thus offered for an investigation and analysis of that fluid.

Protein is the basis of albumen, fibrin, casein, and these are the commencement or starting points of all the tissues, and this, the basis of the three aforesaid animal principles, may be obtained from similar elements in the vegetable kingdom.

Liebig observes: "As far as our researches have gone, it may be laid down as a law, founded on experience, that vegetables produce in their organism, compounds of protein, and that out of these compounds of protein, the various tissues and parts of the animal body are developed by the vital force, with the aid of the oxygen of the atmosphere, and of the elements of water."

Highly proteinized vegetables are the principal food of herbivorous animals, and in proportion as the plants contain this ingredient, are they nutritious. The products of these vegetables are identical with the constituents of the blood, and the blood of animals, chemistry has demonstrated, is formed from these substances. When, therefore, we find men compelled to subsist for a long period upon animal food almost exclusively, which is destitute of protein, scurvy will be found to be one of the forms of disease which this imperfect nutrition will induce.

"Those vegetable principles, which, in animals, are used to form blood, contain the chief constituents of blood, fibrin and albumen ready formed, as far as regards their composition; all plants besides contain a certain quantity of iron, which reappears in the colouring matter of the blood. Vegetable fibrin and animal fibrin, vegetable albumen and animal albumen, hardly differ even in form; if these principles are wanting in the food, the nutrition of the animal is arrested."—(*Liebig.*) This was the case with the seamen who suffered from scurvy in the fleet, during the past summer.

The whole condition of the scorbutic patients clearly proved that the morbid actions were going on in the blood. The extensive ecchymoses, purpuræ, and petechiæ, the rapid tendency to ulceration in all parts of the body, the diminished quantity, high colour and tendency to speedy decomposition of the urine, all evince that the blood is the seat of the pathological changes going on.

To the general received opinion, that the primary cause of the disease is in a deranged condition of the chylopoietic function, we cannot concur. In the vast number of cases which came under our immediate notice, there were but few that exhibited symptoms of disease in the digestive organs. In a disease where the process of sanguification is so much involved, we might expect there would be much derangement in the organs of chymification. Such, however, is not the case, excepting so far as they are deranged by the long application of innutritious food. In the worst cases, the digestive and assimilative organs retained their vigour and activity, after the nervous, circulatory and respiratory systems were prostrate. To this unimpaired condition of the digestive organs, may be attributed the recovery of many cases after our return to port, where, had there been any disease in those organs, all hopes of restoration would have been fruitless.

Treatment.—The mild cases of the disease which first presented, were all relieved by a course of acidulated drinks. The citric and tartaric acids were ordered for this purpose, and the small quantities of fruits which were occasionally procured from shore, were distributed among the patients, and always with benefit. The rheumatism with which the disease was at its first appearance frequently associated, received the usual treatment, with but little or no alleviation, except from the severe nocturnal pains which were frequently soothed by morphia and opium, and the acidulated drinks and fruits.

Lime juice, citric, tartaric and acetic acids, were freely administered, but the number of cases requiring these articles became so great, that the usual supplies on board were soon exhausted. The small quantities of fresh vegetables and fruits, in the officers' messes, were presented to the medical department for the use of the sick, of which the largest quantity on board the Raritan came from the cabin. At one time a liberal supply of potatoes and onions was procured, which were given raw to the sick, and no articles prescribed exerted a salutary effect so promptly as potatoes in an uncooked state. On board our large fleet of whale ships, raw potatoes are served out daily, and they are found so efficacious that they constitute almost the only anti-scorbutic carried out by them. Whenever we could procure even a small supply, the improvement in the sick was too obvious not to prove their superiority to all other remedies administered. It might be supposed that, when cooked, they would be equally efficacious, but such was not the case.

The basis of the potato is starch, and from the facility with which it is transferred into healthy nutritious matter, we may expect some of the same salutary effects from the use of starch itself, in the treatment of scurvy. Starch, indeed, in conjunction with lime juice, we should judge from their elements, and the known condition of the constituents of the blood, would be highly efficacious, if not a specific, in the treatment of this disease. We trust that at the first opportunity which may present to our medical *confrères* in the service, that the efficacy of starch, in conjunction with lime-juice, may be freely tested. Of its success we are sanguine.

Numerous well authenticated instances are on record proving that the long boasted specifics, lime and lemon juice, will not in every instance prove effectual. On board her majesty's ship Leander, the scurvy prevailed to a frightful extent, although lemon juice was plentifully administered during all of her passage from Trincomalee to the Cape of Good Hope. Yet to the introduction of lemon juice as a portion of the seaman's ration, as early as 1795, must be attributed the almost complete extinction of this scourge of the sea, from the British Navy. Before that period, the existence of this disease on board ships performing long voyages, was universal. The destructive ravages of this disorder are awfully and vividly portrayed in the narratives of the early English navigators, particularly in those of Sir Francis Drake, Davis, and Cavendish. Lord Anson, in the course of his voyage round the world, lost more than four-fifths of his officers and men. Sir Richard Hawkins remarks, that within his own naval experience, he had known more than ten thousand men perish by the scurvy. Prior to the year 1796, more sailors, it is believed, fell victims to this scourge, than to the united consequences of naval warfare, and the various accidents incidental to a maritime life. These evils all disappeared for a time, upon the universal introduction of lemon juice; but it would appear, from the recent history of the French, English, and our own marine, that the disease will still at times assume the same intensity with which it formerly raged. This may be owing to less care in enforcing the necessary precautions, or to the protracted cruising and arduous duties, which must occasionally, from the nature of the service, devolve upon particular ships, and which, in a time of war, cannot be obviated. In such cases we must ward off the evil as long as possible, and when it is upon us, without delay resort to such means as we know will prove effectual.

What years of experience have proved to be so serviceable, lemon juices and vegetables, analytical chemistry now comes with her discoveries, and proves to contain just such elements as the body is deficient in. The discovery of protein in vegetables alone, and the part it performs in nutrition, only confirm, like all other important discoveries, the simplicity and the harmony of all the operations of nature.

All the remedies administered for the treatment of scurvy on board the ships in the Gulf, were only palliative. A change of food, abundant supplies of water and pure air, were indispensable for a perfect eradication of disease, and these were not obtained until after our arrival in Pensacola. When the Raritan suffered most, and when most of the articles adapted to the treatment had been expended, the commanders of the English and French squadrons off Vera Cruz very kindly assisted to procure a liberal supply of limes and lemons, with some fresh meats, which proved most seasonable, and materially meliorated the disease, and in some instances saved the lives of the sick. For these kind and seasonable attentions, we take this occasion to return our grateful acknowledgments.

The Raritan arrived at Pensacola on the 24th of July, and from that date the administration of all medicines may be said to have ceased. Fresh meats, fresh bread, potatoes and onions, were served out to all who remained on board. Eighty-four of the worst cases were transferred to the hospital, where acids from the recent fruits, with milk, were administered to the worst cases, while such as were able were placed upon a more substantial diet. In many of the worst cases, the improvement was slow. Many of the scorbutic patients, when convalescent, were seized with the epidemic fever, which raged with great severity at that port during the past autumm; while others were prostrated with autumnal intermittents of an obstinate character, which resisted all treatment until the appearance of cold weather.

The whole treatment of sea scurvy may be summed up in a few words. Supply the system freely with protein, by giving patients freely those vegetables in which it most abounds. Many English naval surgeons maintain that vegetable acids alone are not sufficient to cure scurvy, and that a portion of fresh animal food is necessary for a cure. In the first part of the opinion we cannot concur, and although fresh animal food will accelerate a cure, and should always be resorted to when it can be procured, yet the vegetables are all that are necessary in such cases; and where the fruits and vegetables in a recent state cannot be obtained, starch and lemon juice, both of which can be carried at sea in sufficient quantities, will give us all that is required for the prevention and cure of scurvy on board ships, when combined with cleanliness, ventilation, abundance of water and cheerfulness. Where there are mental despondency, dejection and disappointment in a crew suffering from scurvy, as was the case with that portion of our crew whose period of service had expired, almost every effort to restore the health, so long as these depressing passions continue in operation, will be unavailing. The humane physician and the prudent commander would in such cases recommend a discharge of the crew, and a run on shore.

ART. IV.—*Case of Phosphatic Deposits, terminating in Deposition of Lithic Acid and Lithate of Ammonia.* By A. V. LESLEY, M. D., Brooklyn, New York.

———, while residing in the country in 1840, severely injured his back by lifting a heavy weight. The immediate effect was pain, which confined him to bed for several days. From this time a constant pain was experienced in the loins, especially severe at the fourth and fifth lumbar vertebræ. This was borne by habit, and but little was done after the first few months, in which plasters of Burgundy pitch and stimulating lotions were used without effect. A recumbent position allayed the pain, which was aching and exhausting. General health good, though being exposed to miasma, he became a victim to intermittent and remittent fever. Occasionally during the succeeding years he noticed that the urine was very turbid, and portions issued milky from the urethra; still, as no acute pressing symptoms occurred, no attention was paid to it until the summer of last year (1846), although in 1843 he had experienced three attacks of gravel, passing a small white calculus at the close of each. On recovering last summer from a *coup de soleil*, the urine attracted notice by its almost uniformly turbid appearance. The pain in the back still continued, but not so violent as before. Having been actively engaged in professional pursuits in this city during the past winter, with fair appetite, and no perceptible cause for the gradual loss of strength and comfort, he applied to me for relief.

May 10th. After a superficial examination of his case, I commenced a full series of observations on the then condition of the secretion, previous to adopting any plan of treatment. This series consisted in a record of the temperature and weather, the quantity of urine passed immediately on rising from bed, after breakfast, before dinner, after dinner and at night; the specific gravity of each portion; from these the amount for the day, the average specific gravity, and the solid contents of the urine were obtained; the state of the pulse, the microscopic appearances, the diet, amount of exercise, &c. The microscope used was an excellent achromatic of one-tenth inch focus.

At this time he had been married three years, was between twenty-five and thirty years of age—weight 134 lbs.—appetite very variable, generally large, sometimes insatiable. There was a considerable degree of thirst; the skin acted very freely on slight exercise; the bowels moved regularly, inclined to costiveness; the nervous system was excessively irritable—the mind morbidly active, occasionally gloomy; great vigilance, and sleep was short and unsatisfactory; slight noises caused violent painful palpitations of the heart, and a steady pain was experienced between the fifth and sixth ribs over the heart, whenever he was exhausted by fatigue. At the same time the brain suffered at times from the sun's rays. The pain in the back had diminished, but was very annoying. The pulse was somewhat hard, full and irregular, beating about sixty-five morning and night, which was above his natural range; from this it mounted, from slight causes, to eighty and even ninety, quickly subsiding again. Strength steadily diminishing, although under good exercise and diet.

The urine, during the period of examination, was, with the exception of some few mornings, always turbid, and often very offensive in odour. It was feebly acid generally, on some occasions neutral, and but once found to be alkaline. The specific gravity varied from 1·026 to 1·051, generally above 1·030. The deposit was copious, white, and consisted of the phosphates of ammonia and magnesia. It subsided rapidly after passing, and in fully one-third the number of passages, the phosphates issued either at the beginning or termination of the turbid stream, dense and milky. The urine displayed the iridescent pellicle in a few minutes after standing, and putrefaction began in from four to twenty hours.

The crystals were generally of the ordinary prismatic form, though repeatedly beautiful specimens of the foliaceous and stellar varieties were observed, either mingled with the prisms, or constituting the entire type of the specimen examined.

The diet consisted of the full range of the table, the proportion of meat being large, and a glass of beer two or three times a week; a moderate amount of tobacco was consumed both by smoking and chewing.

Rest, sleep, and abundance of water diminished the turbid character, and of course the specific gravity, but did not appear to influence the quantity of deposit. On the other hand, fatigue, a high range of the thermometer, reduced allowance of water, increased quantity of tobacco, raised the specific gravity, increased the quantity of deposit, and precipitated it before leaving the bladder.

The average specific gravity before treatment commenced, was 1·03851—average quantity ℥xxxvj—average quantity of deposit grs. 1839.084.

24*th.* The first step toward treatment was the withdrawal of the tobacco, substituting gentian root, and the effect was visible in a diminution of deposit. The amount of vegetable food was curtailed, it then forming about one-third the whole diet—the patient was sent to the country to obtain rest and freedom from business. After an absence of a fortnight, he returned in the same state, and immediately after ran down with great rapidity. Coffee and tea were forbidden, pale ale being substituted at breakfast and supper; gentian, quassia and camomile taken regularly; the supply of vegetables was still further reduced.

The deposit still continued, but in a reduced quantity, the strength, however, failing rapidly.

June 17*th.* Made the diet purely animal, with the exception of lettuce twice during the week, to relieve the tedium of constant meat diet. The urine now became clear except after dinner; all the specimens yet showing the triple phosphates.

25*th.* Eight days after the entire withdrawal of bread and vegetables, lithate of ammonia was deposited after dinner, and the next morning lithic acid; the phosphates in the middle of the day and at night. After a few days of alternation, in which the phosphates were rapidly diminishing, the lithic acid and the lithate usurped completely the place of the former. During this period of treatment, the specific gravity averaged 1·03426; the quantity ℥34·58; the mean quantity of solids grs. 1379·23. The state of the patient was about the same; the pulse being rather more irritable, and standing in the morning sixty-nine, in the evening sixty-six.

The meat diet was kept up until the phosphatic tendency was supposed to have been overturned by the lithic acid, and rice, salads, and a little potato were introduced. The strength began to recruit; the pain of the back was sensibly diminished. Oxalate of lime was now deposited constantly in large octahedra; on three days the oxalate assumed the form of dumb-bells. On the 5th and 6th July, the patient had a slight attack of diarrhœa, after which the oxalate disappeared entirely.

During this period, from the disappearance of the phosphates to the 6th July, 11 days, the average quantity of urine was ℥25·7; mean specific gravity, 1·0313; the solid contents had fallen to grs. 1039.09.

The case now became one of lithic acid, and lithate of ammonia. The symptoms were increased gradually in severity, the temporary gain during the deposit of the oxalate was lost, a severe darting pain in both kidneys was added, and a morbid vigilance prevented sleep. The weight fell to 123 lbs. Business, which had been attended to previously, was thrown completely aside, and the carbonate of iron given three times per day, gr. x, rubbed up with conserve of roses. With this the following prescription was ordered: ℞.—Tr. gent., tr. cinchonæ, tr. hyoscyami, āā ℥j; tr. camphoræ ʒj;—a teaspoonful to be taken before each meal and at bed-time. The iron given with the conserve soon disgusted, and the ammonio-citrate in doses of gr. x substituted. Cold sponging to the loins was persevered in throughout the whole of this period.

The carbonate of soda was also used. The diet was principally vegetable; meat allowed in small quantities; acids withdrawn, and tobacco was resumed. Little or no improvement took place for some ten days, when the specific gravity slowly fell, the deposits took place less frequently, the pain of the kidneys declined, and that of the back was less severe, though the strength was stationary. The country was again resorted to, and the patient remained there about a month, during which the same course was pursued. There was a slight improvement during his absence.

The urine at this time was always clear in the morning, high-coloured, of high specific gravity, the acid preponderating. After breakfast, urine pale, turbid, depositing the acid and the lithate; after dinner, the lithate constituted the bulk of deposit, which was copious, always *white*, frequently issuing in a thick, milky stream; some of the particles at times aggregating into little firm masses of the size of pins' heads. At night the secretion was clear again, the salt predominating.

The microscopic appearances were very varied; the usual character of crystal was that of the lozenge, alternating and mixed with the square and the hexagonal table, the latter at times of great thickness, producing the appearance of hexagonal prisms. The varying forms were curious, and could not be explained by the circumstances of the day; sometimes a specimen would contain but one shape, another would have two, three, or four varieties; on one occasion, no less than eight forms of the acid were found in one drop. After the lozenge, the most frequent variety was that of slender half-lozenges deposited upon large spherical masses of lithate of ammonia; then the same upon a large lozenge, disposed very irregularly, giving a vicious, chain-lightning appearance; after these, long delicate needles with beveled ends, elongated tables, and many complicated platforms, all having the lozenge for a basis of construction, were constantly in view.

The lithate of ammonia was in the usual form, rows or networks of minute globules, or collected into opaque masses or enlarged into colourless, flattened spheres of twice or thrice the diameter of blood discs.

During three days the lithic acid assumed the form of red sand,—the crystals being so large that their character could be determined by the eye; at this time the acid amounted to 12¾ grains per day, by actual weight.

The chloride of sodium was found some half-dozen times in dagger and crosslet form, but more frequently in large, splendid dodecahedral crystals, with a beautiful play of colours. Oily globules were occasionally spread over the field and collected in a band around the border; many hair-like fibres were also repeatedly noticed.

This period, extending from July 6 to August 1, when the patient left the city, gave the following results: Average quantity of urine ℥28·28; specific gravity 1·02714; solid contents grs. 951·87.

From August 2 to August 20, while in the country, the averages were, specific gravity 1·01704; quantity of urine ℥36·8; solid contents grs. 802·123.

On the return to the city, and for two or three days previously, the patient was subject to great fatigue, heat, and loss of sleep. The system was deranged, and all that had been gained, seemed lost. The urine was high-coloured, burning the urethra in passing, varying in specific gravity from 1·025 to 1·049; the renal pain returned, and was very severe, and a dull, worrying pain, at times very sharp, appeared behind the pubes. There was urgent thirst; the tongue, clean at the tip and margin, was furred in the middle; bowels costive, great vigilance was present, and the weight fell rapidly to 120 lbs. From eating unripe fruit, an attack of diarrhœa came on, which lasted three or four days; this was followed by a period of rest.

The specific gravity mounted, during this period, to 1·02575 average. The quantity of urine was ℥xxxv. The solids had increased to 897·855 grs. The pulse was very variable, ranging from 50 to 70 in the morning before rising, and from 55 to 70 at night.

After resting a few days, and observing the same course of treatment as before, with moderate exercise after breakfast, a diminution of every symptom took place, which went on rapidly towards a state of health, until the last of September, when all treatment was laid aside. The pulse (Oct. 1) was natural, ranging from 48 to 63. The deposit, whenever it occurred, which was seldom, was in urine passed from three to four hours after dinner, the specific gravity about 1·022, quantity about ℥xxxv. During the last period of treatment, the quantity was ℥xxx, mean specific gravity 1·02347, average solid contents 870·068 grs.

Several points of interest occurred in this case, one of which was the rapid changing of the specific gravity in the course of a single day, *e. g.*, June 23, before dinner, ℥viiss, 1·035; after dinner, ℥ivss, 1·022; at bed-time, ℥vj, 1·043. Aug. 23, 4 P. M., a pale turbid specimen of ℥ix¼, specific gravity 1·008; in the evening, ℥iv¼, clear, high coloured; specific gravity 1·0221. Aug. 28, before breakfast, ℥xiij; specific gravity 1·030; two hours afterward, ℥ij; specific gravity 1·021; three hours later, ℥xiv; specific gravity 1·005.

The specific gravity, although depending, in a great measure, on the quantity of urine, would sometimes maintain its height, even when the amount of urine was large, obeying a law of increment and decrease through the day, rather than that of concentration and dilution; for, during each day, a regular fall and rise were observed, the course being as follows:—from the morning density it fell after breakfast, rose at noon, but not to the height of the morning; fell to its lowest point about 4 P. M.; then rose gradually till midnight, falling again a little to the morning; so that, where the afternoon quantity was small, and of low density, it would still rise in the night urine, although the quantity might be very large.

Another point of interest was the appearance of diarrhœa at the end of the oxalic period, and also at the end of the period in which travelling had disturbed the system, after which the case proceeded to a cure.

The disappearance of the oxalate of lime in the one case, and the immediate improvement and cure following the second, would indicate that catharsis, produced by sulphate magnesia, or other saline purgatives, might likewise produce a crisis which would be followed by health.

Another interesting observation was the effect of coffee upon the crystals of lithic acid. When taken at breakfast, whatever the type of crystals had been the previous night, or in the morning urine, that passed about noon, or from four to six hours after the coffee, the crystals assumed the ragged half lozenge on a mass of lithate of ammonia. It also had the effect of increasing the quantity of hair-like fibres, to such a degree, that sometimes the specimen appeared as if it had been exposed to a dusty room, and in such case the hairs were studded by the crystals like rock candy on a string. A glass of whisky punch, drank when the case was near its termination, rendered the urine turbid, giving copious deposits throughout the following day.

From this case, with its treatment, I am led to infer that the shortest method of putting an end to the deposition of the triple phosphates, is to cut off at once the supply of material in the food, and to build up the system by tonics, meeting the peculiar symptoms according to circum stances; for, until the diet was made absolutely animal, but little advance was made, and in eight days after a pure animal diet, continuing the tonics, the lithate of ammonia made its appearance, soon, with lithic acid to take the place of the phosphates entirely. A circumstance which occurred about ten days after the disappearance of the phosphates, adds force to the inference; the patient, being strongly tempted, ate three ginger snaps, of not more than half an ounce weight; this (eaten at 11 A. M.) produced a beautiful display of the stellar and winged crystals of the triple phosphates.

After lithic acid, with the lithate of ammonia, has appeared, should they be in excess, sufficient to constitute disease, restore gradually the vegetable diet, continue cold bathing, or the cold douche to the loins, the ammonio-citrate of iron, bitter tonics, a sedative at night, with moderate exercise in the morning. The mind of the patient should be freed from anxiety about his case, and he should not be permitted to learn the particulars of any examination, except in the most general terms. The following table exhibits at a glance the results of the observations:

Period.	Quan. ℥	Sp. gr.	Solid conts. Grs.	Specific Gravity.					Diet.	Deposit.
				Before break.	After break.	Before din.	After din.	Night.		
May 10 to May 22	36	1·0385	1839·084	1·0388	1·0353	1·0377	1 0348	1·04818	no change	triple phosphates.
May 22 to June 25	34·58	1·03426	1379 232	1·032	1·02916	1·03008	1·0277	1 0361	mixed, animal food preponderating	ditto.
June 26 to July 5	25·7	1·0313	1039 099	1·0323	1 0245	1·0285	1·0333	1·0329	pure animal food	lithic acid, oxal. of lime lith. amm.
July 6 to Aug. 1	28·287	1·02714	951·878	1·0264	1·013	1·0255	1·0247	1·0265	mixed	lith. acid, lithate of amm.
Aug. 2 to Aug. 20	36 807	1·01704	802·123	1·0175	1·0143	1·0192	1·0143	1·0214	mixed, principally veget.	“ “
Aug. 20 to Sept. 6	35·022	1·0257	897 855	1·0293	1·023	1 0245	1·01575	1·0239	mixed, irregular	“ “
Sept. 7 to Sept. 30	30·126	1·0234	870 068	1·0313	1·0233	1·023	1·0229	1·0273	mixed, regular	“ “

ART. V.—*On the Influence of Isomorphism in determining the Reactions that take place between Inorganic Compounds, and the Elements of Living Beings.* By JAMES BLAKE, M. D., Professor of Anatomy in the St. Louis University.

THE following memoir contains the results of a series of experiments, that have been undertaken with the view of ascertaining the laws that govern the reactions which take place between inorganic compounds, and the elements of living beings whilst still forming a part of the animal organism. The attention which has of late been bestowed on that interesting field of research, on which the phenomena presented by living beings appear to come into contact and to admit of explanation by the results furnished us in our experiments with inorganic matter, is a sufficient proof that physiologists are beginning to perceive that the branch of science which they cultivate, can no longer be advanced by a mere observance of the phenomena which take place in living beings, but that it is necessary that the torch of experimental investigation should be made to throw its light on the complicated processes going on in the living organism. There can be no doubt, also, that the discoveries which the microscope has revealed to us, must sooner or later meet with their application in solving many of the problems of life; but I am of opinion that of late far too much importance has been attached to this means of research, to the neglect of other paths which are more likely to lead nearer to the point, to the elucidation of which the labours of every physiologist should be directed, viz., the discovery of the laws which govern the reactions that take place in living beings. Although it cannot be denied that morphology must always constitute a most important branch of physiology, and perhaps even, as will be shown in this article, a more important branch than many are inclined to allow, yet we might as well hope to arrive at a knowledge of the properties of an inorganic compound, by studying the forms it assumes, as to attempt to explain the reactions that take place in living beings by simply investigating the form and grouping of their elements. The ready means which the possession of a microscope affords of making its possessor acquainted with new facts, seems to have enlisted all the cultivators of physiology into the ranks of the pure morphologists, and to such an extent has this been carried, that even our elementary treatises on physiology are almost wholly filled by morphological descriptions of the various tissues and fluids, to the neglect of those questions which bear on their chemical properties, and which must certainly exert a more important influence on the phenomena of life. Since the establishment of the law of isomorphism, there is no doubt that a careful investigation of the forms assumed by the different compounds of the same element, will throw much light on its relations to other bodies; but this of itself is not sufficient, and it is only by bringing it into contact with other substances as reagents, that we can arrive at a knowledge of its properties. The same remark will apply to the properties of the different substances which enter into the composition of living beings, for their elements, as well as the elements of inorganic compounds, must be possessed of properties which can only be discovered by experimentally investigating the relations which take place between them and other forms of matter. The light which chemistry has recently thrown on some of the more interesting points of physiology, clearly points out the direction in which this branch of knowledge must be pursued, even did not a close analysis of the phenomena of life, by showing that they are dependent on certain changes which are constantly taking place in the elements of the body, lead us to study the chemical properties of these elements, in order to arrive at a knowledge of the laws which govern their changes. It is these considerations that have led me to institute a series of experiments, in which I have endeavoured to ascertain, with some degree of accuracy, the properties of the elements of which the living organism is composed, by bringing these elements, whilst still forming part of the living animal, into contact with certain reagents, derived from inorganic compounds. My first experiments were made merely for the sake of observing the phenomena that followed the introduction of certain saline compounds into the blood; but the phenomena that presented themselves were, in some instances, so striking, as to lead me irresistibly to extend my researches much further than I had originally intended; and subsequently the indications of the existence of a new law governing the reaction between the elements of living beings and inorganic compounds, have induced me to carry on these researches so as to comprehend amongst the reagents I have used, compounds of twenty-eight of the simple elements. A moment's reflection on the problems to be solved by such researches, will suffice to show that experiments conducted with this class of substances, are more likely to furnish us with useful results, than those made with bodies derived from the vegetable or animal kingdom; although, by the striking effects produced by some of these substances on the animal economy, physiologists have mostly directed their attention to the reactions produced by them on the living body. By such a course of proceeding, however, we are employing reagents, with the composition and properties of which we are but imperfectly acquainted, to the neglect of those on the nature and properties of which chemistry has already thrown much light; for not only are we better acquainted with the more purely chemical properties of inorganic compounds, but their relation to heat, electricity and molecular polarity, has been, to a considerable extent, made out. The manner in which I have performed these experiments, has been to introduce a solution of the substance experimented with, into the veins or arteries of a living animal. The preparation necessary to do this, is not of a nature to disturb, to any extent, the functions of any organ; for it requires merely the introduction of a tube into a vein or artery. In most instances, the substances were introduced into the jugular vein; they then are brought into contact with the right cavities of the heart, thence with the pulmonary tissues, and the left cavities of the heart, whence they are circulated through the whole system. The phenomena principally observed, were those connected with the more important functions of the animal economy, as respiration, circulation, and the functions of the nervous system, and it has been principally, as regards these functions, that they have been noted.

The hemadynamometer has, by its use, greatly added to the facility and certainty of detecting any changes which take place in the circulation, and has revealed many interesting facts which must otherwise have escaped observation. If, for instance, a substance that had been introduced into the blood gives rise to an obstruction in its passage through the pulmonary capillaries, this is instantly shown by the descent of the mercury in the instrument; for the supply of blood which reaches the left side of the heart, and the arteries, being cut off, the pressure of the blood in the arterial system is necessarily diminished, and this will take place in four or five seconds after the injection of the substance into the jugular vein. But if the substance used passes through the capillaries of the lungs, the next point at which we can trace any signs of its action is when it circulates over the parietes of the heart, or when it arrives at the capillary terminations of the coronary arteries. Should the reagent be of a nature to destroy the irritability of the heart, its motions are found to be arrested in from seven to ten seconds after it has been introduced into the vein; in this case, the pressure in the arterial system suddenly falls, and no oscillations are visible in the column of mercury. Should even the slightest change be produced in the action of the heart, by the passage of any substance over its parietes, this would be instantly indicated by a modification of the pressure in the arterial system. Should any effect be produced on the passage of the blood through the systemic capillaries, the pressure in the arteries instantly becomes increased if the systemic capillary circulation be obstructed, and diminished if the passage of the blood through these vessels is facilitated.

The effects produced upon the functions of the nervous system, and on respiration, are readily observed. In some cases in which a substance is arrested by the pulmonary capillaries, or when it suddenly stops the action of the heart, it is necessary to introduce it into the arterial system, in order to ascertain its effects on the brain and spinal cord.

In stating the facts that have been observed in these experiments, I shall not attempt to enter into details of the phenomena which characterize the action of each substance, but shall endeavour to present them in a tabular form, arranging the phenomena observed under the different heads before alluded to as connected with the modifications produced in the more important functions. I am aware that such a mode of bringing forward the facts I have to relate, must be attended with the inconvenience of omitting many details which it might be desirable to bring forward; but this I consider will be compensated by the facility it offers of comparing the effects of the various substances used. The arrangement I have followed in drawing up this table is not such as would be suggested by a consideration of the chemical properties of the substances employed, but is based on their physiological action, as ascertained by direct experiment. By the side of each substance experimented with, will be found the quantity generally required to arrest the action of the heart.

N. B. All the experiments were performed on dogs.

Substance experimented with, and the quantity required to arrest the action of the heart.	Action on the heart.	Effects on the nervous system.
1. Ammonia. Liquor ammonia, f. ʒss. Hydrochlorate ammonia, ʒiss a ʒij. Nitrate ammonia, ʒiss a ʒij.	In small quantities they quicken the action of the heart, in larger doses they totally destroy it. Injected into the arteries, the action of the heart is arrested before respiratory movements cease.	Give rise to spasms resembling those produced by strychnia. Injected into the arteries, give rise to general spasm, and in very strong doses will arrest the respiratory movements before the action of the heart ceases.
2. Potassa and its salts. Caustic potassa 3 grs. Nitrate " 5 grs. Arseniate " 8 grs. Carbonate " 12 to 15 grs.	Resemble exactly the salts of ammonia.	Action on the nervous system not so marked as is the case with the salts of ammonia. Same phenomena follow their introduction into the arteries.
3. Salts of strontia. Nitrate of strontia, ʒss a ʒij, Chloride " ʒss a ʒij.	Heart's action rendered slower in about 10 seconds, and it becomes permanently slower and irregular. Irritability destroyed by larger doses; the ventricles appear to be more affected than the auricles.	No effects on the nervous system, except that they seem to favour the continuance of respiratory movements after the action of the heart has ceased. Injected into the arteries, even in large doses, they produce no marked effect on the nervous system.
4. Salts of baryta. Nitrate of baryta, 2 grs. Chloride of barium, 2 grs.	The same as the salts of strontia, but producing their effects in much smaller doses, the heart being quite paralyzed by 2 grs. of the salts in 12 seconds.	The same as the salts of strontia. Even when injected into the arteries, respiration continues for two minutes and a-half after the action of the heart has been arrested.
5. Salts of lead. Acetate of lead, Nitrate of lead.	Analogous to the salts of baryta, but the quantity required uncertain. Sometimes the irritability of the heart has been destroyed by 12 grs. of the acetate, in other experiments 3 drachms of the salt have been required to arrest its action.	More marked than with the salts of baryta. Respiration and sensibility continue for some minutes after the circulation has ceased.
6. Salts of silver. Acetate, Nitrate. It is only when the solution of the salt is sufficiently concentrated to produce a marked physical change in the blood, that the irritability of the heart is destroyed. Three or four grains of the salts will kill by their action on the lungs.	In small doses appear to augment the irritability of the heart. Rhythmical contractions continue 10 minutes after respiration has ceased, although death has taken place from asphyxia. In large doses the irritability of the heart is not increased.	Do not appear to exert any marked influence on the functions of the nervous system.
7. Salts of soda. Caustic soda, Chloride of sodium, Nitrate of soda, Carbonate of soda. When as much as three drachms of nitrate of soda have been injected into the veins, none of the functions appear affected, except that of respiration. The animal lived some hours, and died of asphyxia from effusion in the lungs.	Augment the irritability of the heart.	Do not affect the nervous system.

Effects on respiratory organs.	Effects on the capillary circulation.	General remarks.
Not affected.	Impede the passage of the blood through the systemic capillaries.	Neither ammonia nor its salts prevent, in small doses, the coagulation of the blood. Closely resembles some of the organic poisons in its effects on the nervous system, and in this respect differs from all other inorganic compounds.
Not affected.	The same as with the salts of ammonia. Pulmonary circulation not affected.	Coagulation of the blood favoured even by the caustic potassa, unless injected in very large doses, in which case the blood is rendered dark and grumous, as would be the case out of the body.
Respiratory movements always slightly affected immediately after their introduction into the veins; the lungs generally found redder than natural after death.	Passage of the blood through the pulmonary cavities impeded. Systemic capillaries not affected, except when introduced into the arteries, and then but slightly.	Muscular movements continue many minutes after death. The body has been pushed along by the extension of the hind legs; a quarter of an hour after death a *point d'appui* being afforded to the feet.
The same as the salts of strontia.	The same as the salts of strontia. Passage of the blood through the systemic capillaries rather more impeded.	Muscular movements have been observed to continue until forty minutes after death.
Marked effect on the lungs; after death these organs are found congested, and even during life a frothy secretion frequently fills the bronchial tubes and trachea, causing death by asphyxia.	The obstruction to the passage of the blood through the systemic and pulmonary capillaries is much greater than with the salts of baryta.	Muscular movements continue for some time after death. The same phenomenon had been noticed both by Haller and Orfila after the injection of the salts of lead into the veins. Blood coagulates imperfectly.
Lungs always much reddened, and effusion taking place in their tissue. Frothy secretion in the bronchial tubes when injected in small doses.	The passage of the blood through the systemic and pulmonary capillaries very much impeded. Two grains of the acetate injected into the arteries, caused an increase of pressure in the arterial system equal to a column of six inches of mercury.	Blood coagulates imperfectly.
The same as the salts of silver.	The same as the salts of silver.	Blood coagulates imperfectly.

Substance experimented with, and the quantity required to arrest the action of the heart.	Action on the heart.	Effects on the nervous system.
8. Salts of lime. Chloride of lime, 2 drs. Nitrate " 1½ dr.	Heart's action rendered fluttering, then arrested by larger doses.	Slight spasms; powers of movement impaired; sensibility unaffected; vomiting.
9. Salts of magnesia. Sulphate of magnesia, ℥ij.	The same as the salts of lime.	Great prostration of strength; sensibility unimpaired; when injected into the arteries, proves fatal by its action on the nervous system; vomiting always takes place.
10. Salts of iron. Sulphate of iron, 30 to 40 grains.	Heart's action rendered slower by small doses, and then arrested.	Complete prostration; sensibility unaffected; vomiting.
11. Salts of zinc. Sulphate of zinc, 12 to 20 grains.	The same as the salts of iron.	The same as the salts of iron. Prostration noticed by Orfila.
12. Salts of manganese. Sulphate, 12 to 15 grs.	The same as the salts of iron.	The same as the salts of magnesia and iron.
13. Salts of copper. Sulphate, 16 to 20 grs.	The same as the salts of iron.	Prostration not quite so great as with the salts of iron and magnesia.
14. Salts of cadmium. Sulphate, 10 grs.	The same as the salts of zinc.	The same as the salts of magnesia.
15. Salts of nickel. Sulphate, 6 to 10 grs.	The same as the salts of zinc.	The same as the salts of magnesia.
16. Platinum. Chloride, 3 grs.	Heart's action rendered slower, and fluttering; irritability completely destroyed by three grains.	Slight prostration; no vomiting or convulsions. Injected into the arteries, it kills by its action on the nervous system.
17. Palladium. Chloride, 1 gr.	The same as platinum, but more poisonous.	The same as the salts of platinum.
18. Osmium. Double chloride of osmium and potassa, 2 grs.	Heart's action fluttering, not rendered slower.	The same as the salts of platinum.
19. Iridium. Double chloride of iridium and ammonia, 1 grain. (No salts, except the double salts both of iridium and osmium, are soluble in water.)	The same as the salts of platinum.	Prostration apparently from weakness of the circulation, the pressure in the arterial system being not more than equal to two inches of mercury.
20. Phosphorus. Phosphoric acid, a drachm to a drachm and a-half.	No marked effect on the heart, except when in quantities sufficient to change, in a marked degree, the physical properties of the blood.	Functions of the brain not affected; violent pain apparently in the abdomen.
21. Arsenic acid, a drachm to a drachm and a-half.	The same as phosphoric acid.	The same as phosphoric acid. Forty grains of the acid injected into the arteries, did not produce any marked effects on the functions of the brain.

Effects on respiratory organs.	Effects on the capillary circulation.	General remarks.
Slight spasmodic action of respiratory muscles.	Neither the systemic nor pulmonary capillary circulation affected.	Slight quivering of the muscles after death.
Slight dyspnœa.	The same as lime.	Blood coagulates.
Slight dyspnœa.	Appear to facilitate the passage of the blood through the systemic capillaries.	Blood remains quite fluid after death, so as to allow the complete subsidence of the red particles.
Slight dyspnœa.	The same as the salts of iron.	The action on the blood is the same as that of the salts of iron.
Slight dyspnœa.	The same as the salts of iron.	Blood did not coagulate.
Slight dyspnœa.	The same as the salts of iron.	The blood coagulates imperfectly; irritability of the voluntary muscles diminishes after death.
No effect.	The same as the salts of iron.	Blood remains fluid after death.
No effect.	The same as the salts of iron.	Blood remains fluid after death.
Respiration rendered intermittent in a marked degree; sometimes altogether suspended for one or two minutes, and then recommences, and this may take place many times. Lungs contain but very little blood after death.	Impedes the passage of the blood through the systemic capillaries. Pulmonary circulation not affected.	Slight muscular movements after death; blood apparently much affected, coagulates very imperfectly, and always of a dark maroon colour in the left cavities of the heart, although the action of the heart ceases before the respiratory movements.
The same as the salts of platinum. Lungs always anæmic after death.	Passage of the blood through the systemic capillaries much impeded, the pressure in the arterial system not diminishing until some minutes after the heart has ceased beating.	Action on the blood the same as the salts of platinum. The physical change produced in the blood is very great, considering the smallness of the quantity of the salt.
The same as the salts of platinum.	Systemic capillaries affected even when the salt is introduced into the veins.	Blood arterialized and coagulates. (I think the presence of potash in this salt cloaks the action of the osmium.)
Respiration intermittent; lungs anæmic.	Impedes the passage of the blood through the systemic capillaries when injected into the arteries.	The same action on the blood as the salts of platinum.
Dyspnœa; secretion of froth in the bronchi; lungs hepatized.	Obstructs the capillary circulation in the lungs.	Intestinal mucous membrane reddened. The blood has been found alkaline after as much as a drachm of glacial phosphoric acid had been injected into the veins; coagulation of the blood imperfect.
The same as phosphoric acid. Hepatization often partial; has been observed on three occasions to be confined to the left lobes.	Its action on the pulmonary capillaries does not appear to be quite so great as that of phosphoric acid.	The same action on the mucous membranes and on the blood as phosphoric acid.

Substance experimented with, and the quantity required to arrest the action of the heart.	Action on the heart.	Effects on the nervous system.
22. Arsenious acid.	Does not destroy the irritability of the heart even in a concentrated solution.	The same as arsenic and phosphoric acids.
23. Antimony. Tartrate, 40 grains.	The same as phosphoric acid.	Violent pain in the abdomen; voluntary movements slightly affected; no vomiting.
24. Sulphur. Sulphuric acid.	Increases the irritability of the heart.	Slight convulsions; no expression of pain.
25. Selenium. Selenic acid.	The same as sulphuric acid.	Movements of a spasmodic character, resembling chorea. Injected into the arteries, it kills by its action on the nervous system.
26. Chloric acid.	Increase in a marked degree the irritability of the ventricles, but they seem to weaken the irritability of the auricles. The ventricles continue irritable many minutes (10 to 20) after mechanical stimuli have ceased to affect the auricles; circulation will continue many minutes after respiration has ceased, even more vigorously than during life. The pressure in the arterial system has been found equal to a column of mercury of seven inches, eight or ten minutes after respiration had ceased, and, even when the pressure has sunk to two inches, it will again rise to five or six; the heart apparently receiving a fresh stimulus, although the animal has been, to all appearance, dead for some minutes.	Destroy the functions of the nervous system, particularly when injected into the arteries.
27. Hydrochloric acid.		
28. Bromic acid.		
29. Iodic acid.		
30. Hydriodic acid.		
These substances so closely resemble each other in their action, that I consider it unnecessary to notice each separately. The quantity of the strong acids required to destroy life is, for the Chloric acid, 20 drops. Hydrochloric, 10 drops. Bromic acid, 10 grs. Iodic acid, 15 grs. Hydriodic acid, (sp. gr. 1.12) 3 drachms.		

NOTE.—Having ascertained that all the salts of the same base produce analogous effects gated the action of one of the salts of each base.

A very superficial analysis of the results brought forward in the above table, will suffice to show how very different are the reactions which take place between the elements of living beings and these organic compounds, from those which we might have expected to be produced, from a consideration of the ordinary chemical properties of the re-agents employed. If, for example, we consider the action of some of these substances on the irritability of the heart, we find that by one powerful alkali (potash), it is suddenly destroyed; whilst by another (soda), it is increased; by some acids (the phosphoric and arsenic), it is deadened; by another class (the chloric), it is augmented in a remarkable degree; a strong caustic base (soda) augments it, whilst a comparatively chemically inert salt (the chloride of palladium), even in very small quantities, destroys it. A few grains of nitrate of potash arrest its movements in a few seconds, whilst more than twice the quantity of nitrate of silver only seems to increase its irritability. As regards the passage of the blood through the pulmonary

Effects on respiratory organs.	Effects on the capillary circulation.	General remarks.
The same as arsenic acid. The immediate cause of death would appear to be owing to its action on the pulmonary tissue.	The same as arsenic acid.	The same as arsenic acid.
The same as arsenious acid, but respiration rendered more irregular, *entre coupé*.	The same as arsenic acid.	Effects on gastro-intestinal mucous membrane, and on the blood, the same as those of arsenic acid.
Dyspnœa; secretion of fluid in the air passages; lungs hepatized.	The same as phosphoric acid.	Blood coagulates firmly.
The same as sulphuric acid.	The same as sulphuric acid.	Blood coagulates firmly.
The same as sulphuric acid.	Cause obstruction to the passage of the blood through the systemic and pulmonary capillaries.	The blood coagulates firmly.

when introduced into the blood, I have, in most instances, only experimentally investi-

capillaries, this certainly seems impeded by all acids; but we find that the same effect is produced by soda, and the salts of silver and lead. If, again, we consider the phenomena in connection with the supposed physiological action of the substance, we shall find quite as striking examples of the want of agreement between our preconceived notions, and the facts observed. We see an astringent substance (sulphate of iron), facilitating the passage of the blood through the capillaries, and preventing its coagulation, whilst an alkali (potash), causes the blood to coagulate more firmly, and at the same time affords an obstacle to its passage through the capillaries. We find arsenic exerting no marked effect on the tissues, even when injected in large quantities, whilst a much smaller quantity of carbonate of potash is rapidly fatal; we find the same substances (the salts of baryta), destroying the irritability of the heart, whilst they increase that of the voluntary muscles in a great degree (*this fact had been noticed by Haller, as regards the salts of lead*). Did these experiments only show the necessity of modifying our notions, derived from the common properties of bodies, when we come to consider their action in the living organism, they would be of some use in clearing away many false views, which must exert an injurious influence on the study of physiological chemistry. But the results they furnish are not simply of a negative character; they do not merely prove that the reactions which take place in the living animal are not to be explained by the common chemical properties of matter,—but they point out a new law, which shows, that, under these circumstances, in which the ordinary properties appear to lose their application, a new and a more latent property of matter comes into play, and exerts its influence over a most extensive series of phenomena. A superficial view of the order in which the various substances experimented with, are arranged in the above tables, shows that they divide themselves into groups, each of which is distinguished by reactions not to be found in any other class. Thus we find potash and ammonia, agreeing very closely in the phenomena they give rise to; again we have strontia, baryta, and lead, all producing reactions nearly resembling each other, and all characterized by their influences on the muscular system. Soda and silver also agree very closely in the phenomena to which they give rise.

We then find a very large family of substances, including lime, magnesia, zinc, iron, copper, manganese, nickel and cadmium, all producing effects which resemble each other, and distinguished from all other bodies by their action on the nervous system.

Platinum, palladium, iridium and osmium, readily arrange themselves in a distinct class, agreeing as they do with each other in most of their reactions; another well-marked group is formed by phosphorus, arsenic and antimony. Selenium and sulphur are found closely to resemble each other in their reactions on the living organism; and between the remaining elements, chlorine, iodine and bromine, the most striking analogy exists in their physiological action.

The classes thus formed will be found to agree with those which are adopted by chemists in their arrangement of the different elements, according to their isomorphous relations, and the only conclusion to be derived from this interesting coincidence is, *that the physiological action of these substances depends upon some property they possess in connection with these isomorphous relations.*

The evidence on which this law is founded, will, I trust, be sufficient to ensure its reception. It has been arrived at by an experimental investigation of the physiological action of the compounds of the elements forming all the well-marked isomorphous groups, and in no instance has there been found an exception to it, for the apparent exception which has presented itself by the separation of soda and silver from the potash group, I conceive to be owing to these substances having been united into one group on insufficient grounds; for, whilst the isomorphous relations between soda and silver are well-marked, and also between potash and ammonia, it still admits of doubt, whether any well-marked relations exist between the two first and the two last substances.

But independently of the facts which the above experiments directly furnish of the existence of such a law, there are some collateral considerations which would add weight to the evidence they afford. It will be seen, on referring to the table, that the substances which appear to exert the least injurious effect, or to produce the slightest change in the animal economy, when introduced directly into the blood, are those which either exist in the body as constituents of some of its fluids or solids, or which have isomorphous relations with some of these; whilst, on the other hand, it will be found that those substances which have no isomorphous relations with the elements of the body, are those which are most fatal. The slight effects of arsenic and nitrate of silver, when injected into the veins, afford an example of the first proposition, whilst the very poisonous effects of palladium and baryta are instances of the last. It also appears to me interesting, under this point of view, that silver seems to possess the property of entering into the composition of the animal tissues, without destroying their vitality, or interfering with their functions; now this substance is isomorphous with soda, and I think it highly probable that it replaces it as an element in the composition of the tissues, in cases of coloration of the skin by the use of nitrate of silver. A consideration of the important part which form seems to exert in the phenomena of living beings, might lead us to expect that if, in the reactions that take place between their elements and inorganic compounds, any other property of matter should take a part different from its ordinary chemical properties, this might be a property connected with the form which even these inorganic elements have a tendency to assume. In the present imperfect state of our knowledge as regards isomorphism, it would be useless to speculate on what property connected with these relations, their physiological action depends; whether it is, for instance, through their relations to heat, or to electricity, or from analogy in their specific volumes, that we find isomorphous substances producing the same effects in the animal economy, or whether these effects are connected simply with the property which these substances have of assuming the same form. I think there is every probability that the law which governs the actions between inorganic elements and the elements of the blood and tissues, will be found to prevail in the reactions that are taking place between the different elements of the animal organism.

Having thus deduced the general law which appears to govern the reactions in which the elements of the living body, and these inorganic compounds, are concerned, I shall offer a few remarks on some of the more purely physiological phenomena that I have recorded in the above tables. If we investigate the facts connected with the modifications of the irritability of the heart, it will be seen that the greater number of the metallic salts appear to agree in destroying it; but to this the salts of silver form a marked exception: the alkaline bases and their salts (soda and potash), exert directly opposite reactions on its irritability, the one class increasing it, the other proving fatal to it. Of the earths, we find baryta acting as a powerful poison to it, whilst lime, except in large doses, exerts but slight influence over it.

The greater part of the acids evidently increase the irritability of the heart, but we are not justified in ascribing this to their properties as acids, when we find the phosphoric and arsenic deaden it, and, on the other hand, that it is increased by soda.*

If we compare the action which these substances exert on the heart, with their effects on the functions of the nervous system, we find that, in some instances in which the whole of the functions of the nervous system are suddenly annihilated, the irritability of the heart is much increased. On the other hand, we find substances which increase the action of the heart, exerting no perceptible action on the functions of the nervous system, whilst in other cases, they exert a deleterious influence on it. If we compare the action of these substances on the blood with their effects on the heart, we still find the same anomalies; those substances which favour the coagulation of the blood, in some instances increasing the irritability of the heart, in other instances destroying it, whilst by those substances which prevent the coagulation of the blood, we find the same opposite effects produced. These observations will show how little the action of these inorganic compounds on the heart is connected with their ordinary chemical properties: but there are one or two anomalies which present themselves when we consider the action of these compounds on the heart, in connection with their isomorphous relations;—for instance, there exists a great difference in the relative poisonous effects of the salts of baryta and those of strontia, two substances closely related as regards their isomorphous properties. Were these substances to be classed according to their action on the heart, we might be inclined to place the salts of strontia nearer to the salts of lime than to those of baryta; but here the action which the salts of strontia exercise on the general muscular tissue, refers it at once to the baryta group. There is also a great difference in the quantities required of the salts of magnesia, and those of nickel and cadmium, in order to destroy the irritability of the heart; but the difference is found only as regards the quantity, their action on the heart being perfectly analogous, and also the effects they produce on the nervous centres.

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* The action of the chlorine group of acids on the heart is very remarkable, for by their presence in the blood, they seem to supply, to a great extent, that stimulus which the oxygenation of the blood usually affords. This cannot be owing to the oxygen they contain, for the hydracids of these elements produce the same effects. In twenty experiments that have been performed with this class of substances, I have always found the irritability of the auricles to be diminished in a marked degree, whilst that of the ventricles is even to a more striking extent augmented; the ventricles are generally found beating rhythmically some minutes after the auricles have ceased to contract, and even after they are insensible to mechanical stimuli.

If we turn our attention to the phenomena recorded in the second column of the above tables, we find the same want of agreement between the physiological action of these substances, and their chemical action. Sometimes it is by an acid, sometimes by an alkali, that we find the functions of the nervous system destroyed; in some cases we see that considerable quantities of what are considered the most powerful poisons, can be brought into contact with the brain, without producing any marked symptom, whilst small quantities of some of the neutral salts are extremely fatal to it. The well-marked analogy that exists between the action of the whole of the magnesian class on the nervous system, although including bodies which differ so widely in their chemical and physical properties, affords a striking confirmation of the connection of the action of these substances with their isomorphous relations. As regards the general action of these inorganic substances on the nervous system, I find they differ from the poisons derived from the vegetable kingdom. The only substance amongst them whose action at all resembles that of the vegetable poisons, is ammonia—a substance which appears to form the link between organic and inorganic compounds, and which (or at least some compound of nitrogen, according to a remark of Liebig), enters into the composition of all vegetable poisons. The action of this substance offers the only anomaly as regards the classification of these substances, from their effects on the nervous system, according to their isomorphous relations. There are certain sources of fallacy which, in these experiments, may interfere with our appreciating with exactness the direct action of these substances on the nervous system, particularly the derangements that many of them produce in the circulation through the pulmonary and systemic capillaries. From both of these causes the brain becomes subject to increased pressure, in the one case from venous congestion, and in the other from the accumulation of blood in the arterial system; the pressure caused by the obstruction of the pulmonary circulation, occurring, as it does, in the vein, seems to be much more injurious than when a far greater amount of pressure is supported by the arteries. I have seen the functions of the nervous system but little affected by a pressure in the arteries equal to ten inches of mercury, whilst in the venous system the pressure of an inch and a half, or two inches, is sufficient to arrest the functions of the nervous system. There is one fact in relation to the action of those substances on the nervous system which is worthy of note, viz., that nearly all those bodies which agree in producing great prostration, also agree in preventing the coagulation of the blood. In the action of these substances on the lungs, we find, as has already been remarked, some facts that might attach the phenomena observed to their ordinary chemical properties, for we see that all the acids act in the same way on the pulmonary tissue, or at least, that they give rise to the same changes in the lungs. But again, we see soda, and the salts of silver and lead, exerting the same influence. A closer connection appears to exist between the action of those substances on the lungs, and their influence in maintaining the irritability of the heart; in fact, most of them increase it, whilst all the substances which destroy its irritability, appear to pass through the lungs without affecting them. The only exception, furnished by the action of these bodies on the lungs, to the law which connects their physiological action with their isomorphous relations, is found in the action of the salts of lead, which agree with the salts of silver in the effects they produce on the pulmonary tissue. The effects produced upon the capillary circulation, both pulmonary and systemic, are capable of being observed with considerable accuracy. I have already remarked, that we find all the acids producing an impediment to the passage of the blood through the pulmonary capillaries, and some of these substances exert the same action on the systemic capillaries; whilst others, although they evidently impede the pulmonary circulation, pass through the systemic capillaries without producing the slightest obstruction.

We also find that many substances that pass readily through the capillaries of the lungs, cause great obstruction in the systemic capillaries. I am inclined to think that there are some substances that even facilitate the passage of the blood through the capillaries, although it is difficult to obtain any positive proof of this; nor am I able to state whether these bodies cause obstruction in the capillaries, owing to their rendering the blood physically incapable of passing through them, or whether the obstacle is caused by the contraction of the capillaries themselves.

The only class of facts that now remains to be noticed, are those that relate to the action of these substances on the blood, as ascertained by its more obvious physical characters. It might have been expected that, under this point of view, we should have found a close connection existing between the physical and chemical properties of the reagents employed, and the effects they produced; but such is not the case: for in no other class of phenomena do we find these substances acting so completely in accordance with their isomorphous relations.

The only exceptions observed are, that neither the salts of magnesia nor the salts of lime prevent the coagulation of the blood, although all the other members of the magnesian family produce this effect. The salts of lead also differ from those of baryta, in maintaining the blood fluid, and afford, in this respect, another instance of their analogy with the salts of soda and silver. The fact which I have noticed, of the alkaline reaction of the blood after as much as a drachm of glacial phosphoric acid had been injected into the veins, affords a striking instance of the manner in which the chemical properties of a substance may be masked or changed when brought into contact with the living fluids and solids.

The action of the baryta group on the muscles of animal life, is in curious contrast with their action on the heart, the irritability of which they completely destroy, whilst the voluntary muscles continue contracting for many minutes after death.

It seems, from the foregoing observations, that, independently of the interest that many of the facts recorded may possess, in a physiological point of view, a closer analysis of the action of those substances on the different organs of the body, and on the blood, affords additional proof of the existence of the law connecting the physiological action of these inorganic compounds with their isomorphous relations. Considering the imperfect state of our knowledge as regards the isomorphous relations of the elements, it is surprising that more exceptions to this law have not presented themselves in so extended a series of experiments; and I have but little doubt, that those which have been remarked, will disappear before a more perfect knowledge of the molecular properties of matter, on which, I think, physiological experiments are destined to throw light.

ART. VI.—*An Analysis of the Cases of Delirium Tremens, admitted into the Bloomingdale Asylum for the Insane, from June* 16*th*, 1821, *to December* 31*st*, 1844. By PLINY EARLE, M.D., present Physician to the Asylum.

DURING the whole period of its existence, the Bloomingdale Asylum has been made the receptacle, not for cases of insanity proper, alone, but also for persons labouring under delirium tremens, as well as for some, who, although not attacked with this disease, were addicted to the habitual and excessive use of intoxicating liquors. These persons are not, strictly speaking, proper subjects for an asylum for the insane; but as there is no institution in the vicinity of New York particularly devoted to them, and no other place so well adapted to their treatment and temporary seclusion from the source of their disorder, this establishment almost necessarily became, in the hope of a reformation, their place of refuge.

The aggregate number of *cases* of this kind, admitted previously to the 31st December, 1844, is 594; of which 511 were males, and 83 females. But this number includes many readmissions of the same individuals. In the subjoined table these cases are arranged according to their several admissions and readmissions.

	Males.	Females.	Total.		Males.	Females.	Total.
First admission,	274	48	322	Ninth admission,	5	0	5
Second “	85	17	102	Tenth “	5	0	5
Third “	42	7	49	Eleventh “	5	0	5
Fourth “	29	4	33	Twelfth “	3	0	3
Fifth “	20	3	23	Thirteenth “	2	0	2
Sixth “	14	2	16	Fourteenth “	2	0	2
Seventh “	8	2	10	From 15th to 26th, each one admission,	12	0	12
Eighth “	5	0	5				
				Total	511	83	594

Thus, the whole number of *persons* was 322. To these, and to their disease on their first admission, our investigations must for the present be confined. The years in which they were respectively first admitted, are indicated in the following table.

	Males.	Females.	Total.		Males.	Females.	Total.
1821	14		14	1833	17	1	18
1822	19	3	22	1834	11	1	12
1823	14	4	18	1835	5	3	8
1824	17		17	1836	12	1	13
1825	24	3	27	1837	13	1	14
1826	20	5	25	1838	9	6	15
1827	14	5	19	1839	4	1	5
1828	11	2	13	1840	5	2	7
1829	12		12	1841	6	1	7
1830	9	4	13	1842	2	2	4
1831	14	1	15	1843	4	1	5
1832	12	1	13	1844	6		6
				Total	274	48	322

In the earlier years of the institution, as will be perceived by this schedule, there were many more victims to intemperance received, than at a later period, although the population of the city, the principal source of these patients, was more than doubled during the series of years embraced in these statistics. This fact may undoubtedly be in part attributed to the improved habits of the community, resulting from the interest awakened in the cause of temperance.

The sexes being distinguished in the foregoing table, it will be perceived that there were 274 males and 48 females; the former exceeding the latter in the proportion of nearly six to one.

Of these 322 patients, the countries of nativity of 273, and those of residence, at the time of admission, of 295, are recorded. They are as follows:

Nativity.								Residence.			
State.	M.	F.	T.	Country.	M.	F.	T.	State or County.	M.	F.	T.
New York	137	15	152	Ireland	32	13	45	N. York	237	39	276
Connecticut	10	1	11	England	14	6	20	N. Jersey	6	0	6
New Jersey	9	0	9	Scotland	7	1	8	Massachusetts	4	0	4
Massachusetts	7	1	8	France	2	1	3	Connecticut	3	0	3
Pennsylvania	2	1	3	Nova Scotia	1	1	2	Pennsylvania	0	1	1
Maryland	2	0	2	Wales	1	0	1	Virginia	0	1	1
Virginia	2	0	2	Germany	1	0	1	Louisiana	1	0	1
Maine	2	0	2	Sweden	1	0	1	Michigan	1	0	1
N. Hampshire	0	1	1					Canada	1	0	1
Rhode Island	1	0	1	Tot. Foreigners	59	22	81	Dist. of Columbia	0	1	1
S. Carolina	0	1	1								
				Total U. States	172	20	192	Total	253	42	295
Total U. States	172	20	192	Aggregate	231	42	273				

It appears that 152, or 55 per cent., of the whole, were born in the State of New York; and 40, or 14 per cent., were natives of other States of the Union. Of foreigners there were 81, which is equal to 30 per cent.

Persons labouring under delirium tremens are rarely carried to a great distance for treatment. This is rendered inconvenient, and generally impossible, both by the condition of the patient, and the duration of the disease.

Hence it is not surprising that, of 295 individuals admitted, no less than 276 resided in this state, and a very large proportion of these in the city of

New York. Of the 19, whose residence was in other States and in Canada, several were sojourning in this city when attacked with the disorder for the cure of which they were brought to the Asylum.

The profession or occupation of 238 men is exhibited in the subjoined list. An attempt has been made to classify them according to the peculiar nature of their several employments.

1. *Mercantile.*	
Merchants and Traders,	50
Clerks,	25
Druggists,	3
Manufacturers,	2
2. *Professional.*	
Physicians,	2
Medical Students,	2
Lawyers,	19
Student of Law,	1
Artist,	1
Architect,	1
3. *Dealers in Liquor.*	
Tavern Keepers,	3
Grocers,	14
Brewer,	1
4. *Mariners.*	
Naval Officers,	2
Sailors,	11
Sea Captains,	3
Pilot,	1
5. *Exposed to Heat.*	
Iron-founder,	1
Blacksmiths,	2
Engineer,	1
Glass-blower,	1
Bakers,	3
Hatter,	1
6. *Sedentary.*	
Sail maker,	1
Shoe makers,	2
Watch maker,	1
Tailors,	4
Saddler,	1
Carpet weaver,	1
7. *Active employment within doors.*	
Brush maker,	1
Comb maker,	1
Leather dressers,	5
Carpenter,	1
Cooper,	1
Chair makers,	2
Collector of Taxes,	1
Clothier,	1
Silk printer,	1
Book binder,	1
Nail maker,	1
Gilder,	1
Actor,	1
Printer,	1
Silversmith,	1
Coppersmith,	1
Upholsterer,	1
Circus rider,	1
8. *Active employment out of doors.*	
Farmers,	8
Laborers,	6
Cartmen,	3
Pavier,	1
Painters,	2
Masons,	4
Butchers,	2
Peddlers,	2
Cider maker,	1
Stage driver,	1
Soldier,	1
Musician,	1
9. *No Occupation.*	
Men of leisure, and young men without employment,	23

Merchants, traders, clerks, professional men, persons of leisure, and young men without employment, furnish 129, or 10 more than one-half of the 238 patients here recorded. Without explanation, the necessary inference must be far from flattering to these classes. It must be recollected, however, that they constitute no unimportant proportion of the population of the commercial and wealthy city of New York. They are, moreover, those classes, the members of which, more generally than those of other portions of the population, resort to this institution when thus diseased. The great majority of persons whose pecuniary resources are limited, are taken to places where the expenses are less.

Table showing the Ages of 254 *Patients.*

Sex.	Under 20 years.	From 20 to 30.	From 30 to 40.	From 40 to 50.	From 50 to 60.	From 60 to 70.	Total.
Males,	3	77	81	36	10	5	212
Females,	0	8	19	7	6	2	42
	3	85	100	43	16	7	254

The decennium in which there was the greatest number, is that from 30 to 40 years. The next is that from 20 to 30; and the third, that from 40 to 50.

In the community at large, there is a much greater number of persons between 20 and 30 years of age, than in any decennium of more advanced life. Hence the proportionate number of these patients between 30 and 40 years, as compared with the living population of the corresponding age, is much greater than that in any other period of existence.

The civil or social condition of 286 patients is indicated by the following table:—

Condition.	Males.	Females.	Total.
Single,	122	1	123
Married,	115	37	152
Widowed,	4	7	11
Total	241	45	286

The number of unmarried men exceeds that of the married by seven; although, if the widowed be included with the latter division, the single predominate over the married by but *three.*

This approximation to equality of numbers in the classes of celibacy and matrimony, though so strikingly remarkable with the men, does not obtain with the women. Of the latter sex, the married exceed the unmarried in the proportion of thirty-seven to one; or, if the widowed be included with the married, in the proportion of forty-four to one.

Result of Treatment.

Condition.	Males.	Females.	Total.
Cured,	244	42	286
Much improved,	1	0	1
Improved,	0	3	3
Relieved,	1	0	1
Unimproved,	5	2	7
Eloped,	2	0	2
Died,	19	1	20
Remain,	2	0	2
Total	274	48	322

As a general rule, delirium tremens soon terminates either in recovery or death.

Considering the severity of the disease, it is imminently curable. Thus, of 322 patients, 286 were cured, and but 20 died. The two still remaining in the house are also cured.

It is proper to remark, as has already been intimated, that, in some of these cases, the patient had no delirium while at the Asylum. Among them were a few in each of the various conditions and phases, both temporary and more prolonged, of intoxication.

The rapidity with which the delirium approaches its crisis, in fatal cases, is well illustrated by the following table, indicating the term of residence at the Asylum of each patient who died.

Time in Asylum.	M.	F.	Total.
1 day	2	0	2
2 days	2	1	3
3 "	2	0	2
4 "	5	0	5
5 "	1	0	1
7 "	1	0	1
9 "	1	0	1
Carried up	14	1	15
Brought up	14	1	15
10 days	1	0	1
12 "	1	0	1
13 "	1	0	1
27 "	1	0	1
1 month 22 "	1	0	1
Total	19	1	20

In 12 of these 20 cases, the patient died within 4 days from the time of his reception into the asylum; and all of them, excepting one, within 27 days. The man who remained one month and 22 days, died of congestive fever.

The death of the man who died on the ninth day, was the result of an attempt at suicide, by cutting his throat, before admission. This was also the case with one of the men who died on the fourth day. One of the men committed suicide while in the asylum.

RE-ADMISSIONS.

Second Admissions.—Of the 322 persons before mentioned, 85 males and 17 females, a total of 102, were admitted a second time, and discharged as follows:

	Males.	Females.	Total.
Cured	74	15	89
Much improved	1	0	1
Improved	2	0	2
Unimproved	3	2	5
Eloped	2	0	2
Carried up	82	17	99
Brought up	82	17	99
Died	1	0	1
By Habeas Corpus	1	0	1
Not stated	1	0	1
Total	85	17	102

Third Admissions.—42 males and 7 females, making an aggregate of 49, were each admitted a third time. They were discharged as follows:—

	Males.	Females.	Total.
Cured	36	6	42
Improved	3	1	4
Unimproved	1	0	1
Eloped	1	0	1
Died	1	0	1
Total	42	7	49

Fourth Admissions.—Of the fourth admissions there are 33; of whom 29 are males, and 4 females, who left the asylum as follows:

	Males.	Females.	Total.
Cured	21	4	25
Improved	1	0	1
Unimproved	3	0	3
Eloped	3	0	3
Died	1	0	1
Total	29	4	33

Fifth Admissions.—23 were received a fifth time each. Of these, 20 were males and three females. Discharged as follows:

	Males.	Females.	Total.
Cured	16	3	19
Unimproved	2	0	2
Eloped	1	0	1
Died	1	0	1
Total	20	3	23

Sixth Admissions.—The sixth admissions consist of 14 males and two females; total sixteen. Of these, there were

	Males.	Females.	Total.
Cured	12	2	14
Unimproved	2	0	2
Total	14	2	16

Seventh Admissions.—Eight males and 2 females were each admitted a seventh time, and discharged as follows:

	Males.	Females.	Total.
Cured	6	1	7
Unimproved	1	0	1
Died	0	1	1
Remain	1	0	1
Total	8	2	10

Admissions subsequent to the seventh.—No female was received more than seven times. The admissions of a higher number were exclusively of males. A succinct account of them is contained in the following schedule.

5	were received	8	times	each, and	discharged,	4	cured,	1 improved.
5	"	9	"	"	"	4	"	1 eloped.
5	"	10	"	"	"	4	"	1 improved.
5	"	11	"	"	"	5	"	
3	"	12	"	"	"	3	"	
2	"	13	"	"	"	2	"	
2	"	14	"	"	"	1	"	1 improved.

One man was received 12 times more; and discharged *cured* 7 times, *relieved* five times. His last discharge was about twelve years since, and during the interval between that time and the present, his habits have been strictly temperate, and his mental condition perfectly healthy.

Of all diseases to which the human race is subject, there is none that more completely unmans its unfortunate victim, more entirely divests him of all the attributes, the possession of which has justified him in assuming the title of "the Lord of Creation," than delirium tremens, when in the plenitude of its activity.

The quivering tongue, the disordered stomach, the torpid liver, the rapid pulse, the contracted pupil, the inability to sleep, the irregularity of nervous power, the impotent functions of the brain, and the consequent insubordination of the system to its control—these physical symptoms, though much, are but little, when compared with the mental phenomena resulting from them. The depraved action of the avenues to the mind, the external senses, and the unhealthy functions of the perceptive faculties, whence the patient is unable to appreciate or understand the nature or the relations of the objects by which he is surrounded; the entire confusion of his ideas of matter, time and space, the laws by which they are regulated, and the inevitable results of those laws, if not the least alarming are certainly less prominent and imposing than some of the other symptoms. These may be called the negative mental phenomena. The positions are more salient, and hence make a stronger impression upon the beholder. They are the visions which are continually conjured up by a wayward, excited and ungovernable imagination, more varied in their forms and characters than are the designs of the artist, more diverse and unstable than the ever-changing pictures of a phantasmagoria. The walls of his apartment, mere mortar and whitewash to the view of other people, present to the patient pictures of every possible variety in character and composition. Animals of various kinds throng into his room, crouch before him, with threatening gestures, and grimaces the most frightful, creep beneath his bed or crawl upon it with torturing menaces. Enemies in human form spring up to bind, to drag to prison, to the tribunal of justice, to the rack, or to the place of execution, or perchance to shoot or to slay with the sword; and, finally, the phantoms of the ideal world, spectres with gorgon heads, and bodies more hideous than those of the satyr or the fabled tenants of the lower regions, glower upon him with their eyes of fire, gnash their teeth in fiendish defiance, at length seize upon him, and he struggles with them in the full faith that he has encountered the devil incarnate.

Such are the features which constitute the most distinctive, and to some the most appalling characteristics of this disease. How beautiful the results of the harmonious movements of that system which, as the crowning work of the creation, was both "fearfully and wonderfully made;" yet how revolting the effects of its discordant action!

But, as has already been observed and demonstrated, notwithstanding the remarkable physical disorder, and the heterogeneous medley of mental phenomena, attendant upon the malady in question, there are but few acute diseases involving any important organ or series of organs, which are more curable. The physical powers, though so nearly prostrate, rise with a resiliency truly remarkable, and the mind rapidly resumes the powers of its healthy action.

There are few, if any, diseases, the rules for the treatment of which are less clearly defined than delirium tremens. Perhaps there is none in which the system of medication is less uniform in the hands of different practitioners.

The treatment formerly pursued at this institution, may be inferred from the following synopsis of the prescriptions for ten patients, admitted at different periods, from 1821 to 1844.

1. Tartar emetic, Epsom salts, and the warm bath.
2. Epsom salts and tartar emetic.
3. Laudanum.
4. Opium and hellebore.
5. Opium, hellebore, and serpentaria.
6. Laudanum, tincture of hellebore, infusion of chamomile and valerian.
7. Calomel, senna, and the infusion of valerian.
8. Camphor, opium and wine.
9. Calomel, opium, camphor, infusion of chamomile and valerian.
10. Calomel, Dover's powder, and castor oil.

It has been already observed that delirium tremens is not usually considered as ranking under the general head of insanity proper. What opinion soever may be entertained upon this subject, the malady is so different from ordinary mental alienation, in both its characteristics and its duration, that the therapeutic principles adapted to the treatment of the former are entirely inapplicable to the latter. Hence, as well as for reasons hereafter to be mentioned, we have ever held the opinion—and it has been very strongly confirmed by the practical observation of several years—that cases of delirium tremens ought not to be admitted into institutions intended for the insane.

The disease is of short duration, and consequently the patient requires *absolute* seclusion, or close confinement for but a limited period. The converse of this proposition, as a general rule, obtains with the insane. The internal police of an asylum cannot, therefore, be adapted to the necessities of the two classes. The supervision, the restraint, the abridgment of liberty necessary for the one, are not so for the other. If the delirium patients, after recovery from the immediate effects of the disease, be allowed to have all the privileges to which they are entitled, compatible with their condition, ill feeling and jealousy are engendered among the insane, to whom those privileges cannot safely be extended.

It is to be hoped that the State, hitherto so watchful of the interests of the insane, the deaf and dumb, and the blind, within its jurisdiction, and so liberal in its appropriations for their benefit, will, at no distant period, establish an institution for the intemperate.

Of the many cases which have been admitted into this institution, there have been but comparatively few instances of reform from the habit of intoxication. Such reformation could not be expected from the brief term of seclusion to which the patients are subjected. Accustomed, as the persons have been, in most cases, for many years, to the use of liquor, the whole frame, and particularly the nervous system—these organs so mysterious in their organization, so wonderful in their functions, and so difficult of control—have adapted themselves to the stimulus to such a degree, that it has almost become a matter of necessity. Every system of organs, every organ, every fibre, every ultimate corpuscle which assists in making up the fabric of the body, and lends its agency in prosecuting the phenomena of vitality, has, as it were, obtained an abnormal appetite, which calls loudly and perseveringly for indulgence. Hence the only hope of reformation, in a great majority of cases, lies in a prolonged seclusion, and a compulsory abstinence from stimuli a sufficient length of time to permit a thorough regeneration of the whole frame. If the patient be placed beyond the reach of liquor, in an institution conducted upon the best of hygienic principles; furnished with plain but nutritious food, and take sufficient exercise in some useful manual employment to promote the healthy action of every part of the system, the process of renovation would proceed with considerable rapidity. The absorbents, and all the organs of secretion acting vigourously, would constantly be throwing out of the body the unhealthy particles of which it is composed, while the organs of assimilation would as continually supply their places with new healthy and energetic matter, unaccustomed to the deteriorating effects of stimulus, and capable, without it, of performing with vigour its office in the functions of animal life.

Art. VII.—*Pseudarthrosis in both Bones of the Leg, resulting from absorption of Callus, treated unsuccessfully by Excision and Caustic, and again by Resection.* By Henry H. Smith, M. D., Lecturer on Surgery, Philadelphia, [with 3 wood-cuts.]

The interest felt in the treatment of cases of Pseudarthrosis, the numerous plans proposed for the treatment, and the varied estimation in which they are held, induce me to believe that the details of the following case, by showing the dangers resulting from two plans of operating, may not prove uninstructive.

From an inspection of the valuable tables by Dr. Geo. W. Norris, of this city, published in the No. of this Journal for Jan. 1842, it appears "that the Seton enjoys the greatest popularity in the treatment of this affection, and according to the published results (allowance being made for unsuccessful cases not printed), it has also obtained the best results. Thus, out of 150 cases reported, 46 were treated by the seton; of which 36 were cured; 3 partially cured; 5 not benefited, and 2 died."

Proposed by one whose well-earned celebrity placed him at the head of surgery in this country, the seton is so constantly referred to, in connection with false joints, that every tyro in the profession would probably suggest it as the means most likely to effect a cure. It seems, therefore, necessary to premise, that it was not resorted to in the following case, because the great difficulty of exciting the proper inflammatory action, together with the patient's apparent indifference to pain, induced the belief that more active measures would be required—a belief unfortunately too strongly confirmed by the result.

Mrs. ———, æt. 30, of sanguine temperament, moderate embonpoint, and in the apparent enjoyment of excellent health, was thrown from her carriage, Nov. 9th, 1844, at 5 P. M. Soon after the accident, she was removed to an adjoining house where I saw her, suffering from a fracture of the left leg, and an injury on the left side of the body. Being joined shortly after my arrival by Dr. G. Emerson, a temporary dressing was applied, and the patient conveyed on a settee to her residence.

After preparing a fracture bedstead and bed, we re-dressed the limb, and found, upon a more careful examination, a fracture of the tibia near the middle, and one of the fibula at its lower third, accompanied by a considerable contusion of the soft parts. There was also a large effusion of blood, beneath the integuments, which partially escaped through an opening made by a needle-shaped spicula of bone. This opening was so small, that, strictly speaking, the accident was a simple fracture, though with every prospect of becoming compound. The bruises of the body required but little attention.

The patient being placed upon the fracture bed, the limb was placed in a fracture-box, covered with cold cloths to combat the inflammation around the injury, and an anodyne administered to quiet the twitches of the extremity. On further inquiry, we found that Mrs. ——, though now in the enjoyment of good health, had but just recovered from an abortion, which had confined her to the house for several weeks.

By continuance of the cold lead-water dressings, the slight puncture of the integuments healed readily; the contused portion did not slough, and the fracture under the ordinary treatment ultimately united. The union, however, was very slow; so much so, that, during the ninth week, I was obliged to apply several blisters over the seat of injury, in order to increase the action in the part and the development of provisional callus. During the eleventh week, the limb had become sufficiently firm to allow the patient to be placed on a sofa, the leg being well protected by paste-board splints, and bandages; shortly after which, she was allowed to walk about her room on crutches, but not to use the limb. At this period I was taken sick, and Mrs. —— being extremely sensitive as to any inspection of her leg, would not permit other medical attendance, believing that she was nearly well, and trusting from day to day for my return to business. During this interval of nine days, the bandage about the foot became loose, and catching on something, threw her upon the floor, rupturing the provisional callus, and displacing the fracture. From this time, and until my recovery, she continued under the care of my father-in-law Dr. Horner. Dr. H., on his first visit, finding the bones displaced, the provisional callus destroyed, and the limb swelled, directed perfect rest, and shortly afterwards applied the dextrine apparatus; but without benefit.

March 1, 1845. I again took charge of Mrs. ———, Dr. Horner continuing in consultation. The bones were yet movable; the lower fragment of the tibia projected forwards; the provisional callus, previously distinct, was almost entirely gone, and the leg yielded at the fracture upon the least movement. Friction of the ends of the bones was now practised; extension applied to coaptate the fracture, and the limb dressed so as to preserve the most perfect rest in the part, whilst a full and generous diet, with tonics, was directed. But all to no effect. She now also suffered from menorrhagia and dysmenorrhœa, to which I then first learned she was subject; and in June, seven months after her accident, aborted at about the sixth week of pregnancy. Her general health, therefore, required constant attention.

The ends of the bone were now evidently rounded off, and covered with a new substance; her strength much impaired by confinement; and as there seemed to be no prospect of union without an operation, an apparatus similar in principle to Hutchinson's splint, was applied to the limb, so as to enable her to walk with the assistance of a cane.

By this splint (like that of Hutchinson, except in the material (tin) being moulded to the limb instead of flat), the weight of the body was borne by the strings below the knee; the bones were prevented from being displaced by the extension applied to the ankle; and the splints, projecting a little beyond the foot, were therefore the point of support.

With a view, also, of improving the tone of her general system, and preparing her for an operation in the fall, I accompanied her to the sea shore, where she spent the summer, and rapidly regained her strength; though still annoyed by lumbar pains and menorrhagia.

On her return to the city in the latter part of August, I advised an examination per vaginam, under the idea that a polypus uteri might be the source of her trouble; nothing, however, was found wrong in this organ except a slight prolapsus, which was relieved by the use of a pessary, and cold astringent lotions. The limb now presented the well-marked characters of a false joint. The bones were movable in every direction; the end of the lower fragment which projected, could be felt rounded off, though attached to the upper by an intervening ligamentous tissue: the muscles were much wasted, and the patient unable to stand upon the leg without the splint or other assistance, the limb yielding laterally or forwards, upon her making the least attempt at locomotion. In the latter part of September, as her general health was good, as she had been free from any uterine derangement for two months, and had gained several pounds in weight, she requested that other means might be resorted to, to relieve her of her accident. Dr. J. Rhea Barton was therefore added to her previous attendants, and it was decided in consultation, that, owing to the lapse of time, the tardy union, and the peculiar circumstances of her case, especially in respect to inflammatory action, a seton would probably fail, and that rasping the ends of the bones, and the application of caustic potash, so as to create a new surface on the broken ends of the tibia, would be preferable.

Accordingly, Oct. 1st, 1845, eleven months after the first accident, in the presence of Drs. Horner, Barton, Emerson, and Sickle of the navy, I cut down in an oblique direction upon the fracture; dissected out the ligamentous matter uniting the bones; removed with a small metacarpal saw the lamina of bone on the lower fragment, and shaved off as much of that on the upper as I could; applied the caustic potash freely to both ends of the bone, and filled the wound with patent lint, so as to render it easy to re-apply the caustic if requisite. The limb was then placed in a fracture-box; poulticed, &c. &c., until free suppuration commenced, when Dr. Barton's excellent bran dressing was applied and continued during the discharge. *Very little inflammation resulted from this operation, and there was but trifling fever at any time after it was performed.* The caustic was therefore reapplied at the end of a week, and the wound then allowed to heal, which it did about the middle of January, 1846. Until Feb. 22d, the usual dressing was continued, with much prospect of a successful result, but on examining the limb subsequently, more freely than had been previously done, we had the mortification to find that there was little or no union.

On March 5th, the patient was therefore allowed to sit up in bed, and gradually to move about, her limb being placed in the iron splints, hereafter described, the operation being regarded as a failure.

During her treatment, she was unwell every three or five weeks, generally for a week at a time, and owing to anxiety to see a brother who was dying of consumption in the upper part of the city, she had made repeated efforts to sit up in bed, and was otherwise restless, although this I did not learn until some time afterwards, having been deceived by the nurse. — A second false joint being thus established, and the summer advancing, I took her again to the sea shore; gave her chalybeates, and endeavoured to overcome the irregularity in her uterine system by every possible plan of treatment. During this period, she took freely of phosphate of iron and lime, more as a forlorn hope than with any decided expectation of benefit to the fracture.

On her return to the city, a consultation was again held. The ends of the tibia were now more distinctly rounded off, and could be felt through the integuments riding upon each other to the extent of an inch: movable in every direction, as before, whilst the whole limb was much attenuated: but her general health was fair. In this state she continued until the early part of November, when, with a heroism worthy of success, she again determined to submit to an operation; anything being preferable, to use her own expression, "to her present useless condition in her family." Accordingly, it was determined in consultation, to practise resection, and to cut off the ends of both fragments of the tibia, so as to convert an oblique into a transverse fracture, in order that if the operation should again fail, the surfaces of the bones, by presenting evenly to each other, might support her weight, and therefore be more useful in progression. As the bones already overlapped, and as the proposed excision was to be limited to the portion displaced, it was not supposed that the re-section would in any way add to the existing shortening, and this was proved in the termination of the case.

I therefore on Thursday, Nov. 19th, 1846, at 10½ A. M., two years and one week after her original accident, proceeded to operate, assisted by Drs. Barton, J. M. Wallace, and F. C. Smith. The limb being extended, I made an incision about six inches long, through the integuments on the inside of the tibia parallel with the bone, and distant about four lines from the inner edge of the shin. (Fig. 1.)

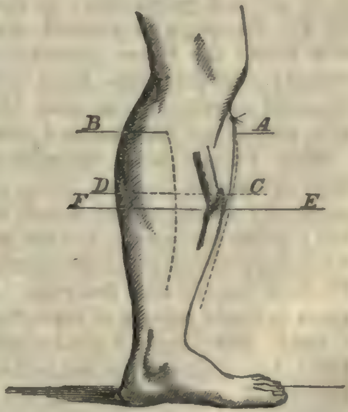
I next made a similar one (B) on the fibular side of the leg (A), and connected the two by a transverse cut (E F) directly over the seat of fracture, so as to form a letter H. The two flaps were then dissected back about 2½ inches each way, so as to expose the bones, when the fascia and muscles were freed from the outside of the tibia, as far as the interosseous ligament.

A similar dissection was now made on the inside of the tibia, keeping as close to the bone as possible, in order to avoid the posterior tibial artery, and the part being thus freely exposed, presented a true pseudarthrosis, with a ligamentous capsule surrounding and extending between the ends of the bones. This capsule being opened, presented the well-marked characters of a false joint.

The bones were completely rounded off, as seen after amputations, covered by a lamina of compact structure, and true articular cartilage; whilst a shining tissue, resembling the synovial membrane, and containing a clear fluid, like synovia, filled up the cavity of the joint.

After dividing the new capsule, and also the interosseous ligament, the bones were allowed to overlap, and a retractor being passed beneath them to protect the soft parts, the upper point of the lower fragment was sawed off transversely, with the common amputating saw, the bone being freely turned out of the flesh. The retractor being next passed under the lower end of the upper fragment, a similar portion (C D) was removed from it by the same instrument, and a slight extension being made, the two transverse surfaces thus formed, were placed in close contact by the line C D. During the operation there was but little blood lost, only one or two vessels requiring ligatures, except on dividing the upper fragment of the bone, where an artery in the cancellated structure, bled freely; but it was subsequently arrested by touching it with the nitrate of silver, pressure with a cold sponge, &c.

Fig. 1.



The limb being now straightened, the flaps were united at the corners by a few stitches; covered with cerate; and laid in a fracture-box with bran; whilst under the use of anodynes, the patient slept comfortably.

9 *P. M.* Mrs. ——— has reacted fully, and slept tranquilly, though occasionally annoyed by starting of the limb.

20*th*, 9½ *A. M.* Has had a good night; slight fever, little annoyance from limb, still disposed to sleep; ordered low diet and perfect rest. 2 *o'clock* Was called suddenly on account of hemorrhage; found that spasm of the limb had deranged the bones, and that the bleeding came from the artery in the bone before referred to. Replacing the fragment sufficed to arrest it.

9 *P. M.* Considerable fever; pulse 120; skin dry; tongue moist and clean; much nervous excitement, violent pain in back, and frequent spasm of limb. Ordered mist. neut. and solut. morph. pro re natâ.

22*d*, 9 *A. M.* Has had a restless night; pulse 140, tongue coated, skin hot and dry, violent pain in back, with extreme uneasiness; no movement of bowels since operation; leg easy. Continued morphia, mist. neut., and gave pills of extract of colocynth comp.

23*d*, 12 *o'clock.* Dressed limb to-day, assisted by Drs. Barton and Wallace; wound healthy, and covered by a free supply of good pus. Bones perfectly in position. A slight movement made in dressing, caused the flow of a little blood, evidently from the bone. Granulations commencing in wound and on bones; bran dressing continued; stitches allowed to remain; ordered increase of diet, as chicken-broth and light food, in hopes of reducing irritability and frequency of pulse, and making up for drain from wound.

24*th*, 9 *A. M.* In good spirits, pulse frequent, but soft; tongue cleaner; skin dry; treatment continued. 12 *o'clock.* Was called in haste, Mrs. ——— having had a severe chill about one hour since, with a return of spasm; great nervous prostration; weeping and hysterical; complains of aching pains in the sole of her foot; pulse 145, and feeble; skin cold and dry; ordered quinine grs. i, every two hours, morphia grs. ss, pro re natâ, and beef tea, with brandy. 4 *o'clock.* Patient has reacted, but still suffering severely from pain in the foot: removed the bran from wound, and found the lower flap sloughing for 1½ inches; sides of wound tumid, pus sanious and offensive; cut out the sutures; dressed wound with a little extra bran, and renewed the morphia and stimulants. 10 *P. M.* Has continued to suffer from violent spasms of leg; pulse very feeble, over 140; great nervous prostration; so much pain in the limbs, &c. &c., that I sent for Dr. Barton, who assisted me in renewing the entire dressing. We now found the lower fragment displaced; re-set it; removed one other suture; free discharge from wound; dressed the limb again with bran; repeated morphia gr. ss, with Hoffman's anodyne; ordered food at intervals, and as her state seemed critical, I passed the night in the house.

25*th.* Patient had a tolerable night; took very freely of anodyne to relieve spasms of leg and body, generally, some of which were so violent, especially whenever she dozed, as to require some one to hold her in the bed; pulse 150, quick, but not so irritable; still much prostrated; pain in limb, deep-seated and continuous; ordered quinine grs. ii, every two hours; chicken, brandy and morphia. Foot presents a red spot on instep, and there is slight œdema of limb threatening erysipelas.

26*th.* Has passed a good night; pulse feeble, but regular; slight erysipelas, but confined to foot, which is very œdematous; pus from wound better and very free: slough of two inches of lower flap separated; granulations healthy; bone exposed where flap sloughed; appearance of tongue good; skin slightly moist. Ordered full diet, porter and quinine; learned that fever, which comes on every evening, lasted last night from 4 P. M. until 1 A. M.

30*th.* Assisted by Drs. Barton and Wallace, changed the dressing; wound looks healthy; pulse good; bones in position; the inner side of upper fragment highly vascular and granulating; profuse sweat in night; limb dressed with Boyer's splints and bandage of Scultetus; ordered citrate of iron, and quinine, with full diet.

Dec. 5*th.* After doing well to this date, with only a slight decline of appetite, there was a return of uterine hemorrhage last night, accompanied by violent twitchings and spasms of whole body. The teeth were closed so tightly during the spasm as to break the first bicuspid. These spasms were relieved by large doses of morphia administered by me constantly during the night. To-day, on opening the dressing, we found the lower fragment overlapping the upper, having been displaced by the spasms. Extension drew it to the proper position, where slight pressure on the front of the bone retained it. Top of foot red and œdematous; circulation in it languid, with slight show of erysipelas: skin there perfectly intolerant of pressure. Consultation ordered, infun. of serpentaria and elixr. vitl., with as nutritious a diet as she can take. 6 *P.M.* Has had another heavy chill with general spasm, and pain in head; leg comfortable, but foot much swelled, puffy and red; applied lead-water to foot, and ordered pills of musk and camphor.

6*th.* On opening dressing, found bone again displaced; pus evident on the instep where the pain has been so severe; dressed leg with paste-board splints around the limb, and continued apparatus of Boyer. Continued treatment.

11*th.* Foot has continued swelled and fluctuating on instep, but as yet shows no pointing of matter; bone perfectly in place; wound at fracture almost healed, and very healthy, notwithstanding state of foot; constitutional symptoms improved; diet moderate; continued splints of Boyer with pasteboard, compresses on upper end of lower fragment, and Scultetus' bandage, as before applied.

13*th.* The abscess on instep opened last night, and discharged about a teacupful of pus much mixed with serum; symptoms much improved.

16*th.* Continued to do well since last date, but had a heavy chill at 8 A. M. to-day, which lasted one hour and a half, accompanied by frequent vomiting of bilious matter; wound improving; foot slightly swelled, and discharging a more watery fluid, in very small quantity.

17*th.* Considerable fever; pulse 115; constant nausea and vomiting; tenderness of abdomen probably consequent on vomiting; bowels freely opened by an enema; wound nearly healed at fracture; but the foot is again much swelled, and erysipelas is there developed, the skin being red and vesiculated as far as the ankle; discharge from foot profuse, thin, and watery; red splotches on inside of thigh, *but no erysipelas between ankle and knee*, where the parts are covered by the bandage. Ordered comp. cathartic pills, and as much nourishment as can be given. Laudanum clothes to erysipelatous parts.

18*th*, 9 *A. M.* Nausea and vomiting of bile continued all day yesterday; tongue red and moist, with slight fur; pulse feeble; countenance heavy and listless; no pain in foot; *wound at fracture continues to do well;* erysipelatous redness of thigh somewhat increased; groin painful; limb dressed as before. Ordered ol. terebinth. and ol. menth. ppt., āā gtt. j, on sugar; mustard plaster to epigastrium; and lime-water and milk. 4 *P. M.* Still vomiting; no relief; unable to retain a teaspoonful of cold water one minute; no epigastric pain, although tender on pressure. Ordered clothes wet with tinct. camph. to abdomen. 8 *P. M.* Pulse very quick, feeble and irritable; has vomited about one quart of water and bile at a time, which was followed by temporary relief; but efforts to vomit soon returned; has had hiccough from time to time. Ordered iced champagne, of which a wineglassful was retained twenty minutes; then ordered two old opium pills, and no liquid except cold water by teaspoonful.

19*th*, 9½ *A. M.* Has retained opium pill and rested well; no vomiting since 9½ P. M.; pulse quick, but softer; slight perspiration; limb and groin easier. Ordered a little cold arrowroot and barley water.

20*th*, 9½ *A. M.* No vomiting; rested tranquilly, and seems comfortable, but feeble; pulse small, soft and frequent; skin natural; *foot and leg doing well;* bandage of Scultetus continued up thigh, (where erratic erysipelas continues,) in expectation of its acting as on leg. Ordered nutritious diet, porter and quinine every hour. 6 *P. M.* Called in haste, and found patient recovering from sudden fainting, very feeble, and much oppressed in breathing; gave brandy freely, and used external stimulants till reaction; then gave musk and camphor pill, with quinine at intermediate hours. 10½ *P. M.* Had another fainting spell, which lasted near an hour; prostration extreme, accompanied with great dulness of intellect. Remained with her all night, and continued stimulants every hour.

21*st*, 9 *A. M.* A little more strength of pulse; respiration stronger and easier; tongue moist; abdomen soft; erysipelas better on front of thigh, but travelling up on back of buttock; no nausea; has taken freely of thick barley water, with a tablespoonful of brandy, and one grain of quinine every hour during night; expresses herself easy, but extremely feeble. Ordered stimulants to fullest extent. 9 *P. M.* Free reaction; skin warm and in free perspiration; slight and occasional nausea; has taken cream and calf's-foot jelly every hour; one opium suppository, and pills of musk and camphor, with wine whey for drink, our wish being to pour in food, &c., to the utmost extent.

22*d*. Has passed a good night; countenance natural; pulse soft, but frequent, 110 in a minute; skin moist; has perspired all night; slight appetite; limb looking better; *desquamating under bandage on thigh;* beyond the bandage as high as the buttock, there is vesication, but less redness. Ordered quinine gr. j every hour, wine whey, jelly, &c.

23*d*. Rather weaker to-day in consequence of free colliquative perspiration, which continued all night, and till 10 A. M.; limb not dressed on account of prostration. Treatment continued.

24*th*. Prostration this morning extreme; other symptoms extremely bad; apparently sinking. Ordered phosphate of iron gr. ii., thrice daily, and omit quinine, on account of its affecting head; boluses of chicken and bread, highly seasoned, to be given every hour; suppository of opium; pills of musk and camphor. These I continued all through the night whenever she was awake.

25*th*. A marked improvement since 1 *A. M.*, after free movement of bowels; pulse softer and fuller; countenance better, and expresses herself comfortable; on dressing limb, found erysipelas better; wound healed, except a spot of very superficial ulceration of half inch; slight redness and fluctuation again in instep; dressings re-applied. Ordered venison, chicken salad and ale, articles which she strongly desires.

27*th*. Awoke much refreshed, and seems better, though very feeble; tongue more moist; pulse soft.

28*th*. Has rested well; on renewing dressing found wound at fracture healed; limb free from redness except above thigh, where there is still a little erratic erysipelas, though slight.

30th. Erysipelas has entirely disappeared; she has had no hectic or sweats for three days; appetite good, and advantage taken of it; evidently convalescent; the mild purging of the bowels and diet seems to have acted admirably in producing the crisis of the disease.

Jan. 4th, 1847. Opened limb to-day and found it evidently stiffer at fracture, and otherwise doing well; constitutional symptoms improving; full diet.

24th. Dressed limb, which continues to stiffen; continued paste-board splints all round it; applied a modified club-foot apparatus, as hereafter described, and allowed patient to sit up in bed in order to relieve back, which is suffering from pressure; full diet.

March 27th. Has been sitting up in bed since last date; union is now perfect, though still soft; progresses slowly.

This state of things continuing for four weeks longer, she was then allowed to move with crutches to an easy chair, the fracture being firm, but without as large an amount of provisional callus as was hoped for. The dressing being now changed only once in ten days, and there being no modification of treatment, no note was taken until *May 10th*, when a consultation was again held to judge of the state of the callus, as I trusted to show a successful result of all our labours.

May 10th. Drs. Barton, Horner, Emerson and Wallace, visited patient to-day. She has been walking about her room with splints and crutches for two weeks, without feeling any inconvenience. On opening the dressing, we were, however, mortified to find the callus evidently softer, and motion in a lateral or antero-posterior direction; limb wasted considerably since last seen in consultation, but general health good. As the case seemed likely to take its former course, and there was an evident tendency to re-absorption of the callus, she was ordered, after mature deliberation, to continue to move about, in hopes of exciting the action in the part. The appearances of cure, judging from our previous knowledge of her case, being at present most distant.

June 7th. Mrs. ——— has been walking about with the iron splint and crutches since last note, and complains of soreness at the fracture. The callus has entirely disappeared, and the limb is freely movable in every direction; general health excellent.

Oct. 1st. Having passed the summer in the country, Mrs. ——— has been enabled to walk about readily with only a cane, and when she forgets it, can walk alone, but soon becomes afraid of falling, and has to resort again to its support. The halt in her gait is but slight, the shortening of the limb being compensated by a piece of cork placed inside the heel of her shoe. At present the limb is dressed with a laced stocking, to support the venous circulation and prevent swelling, she having now used a bandage for three years. When the laced stocking is on, she can raise or move her leg in any direction, as the bones are so closely approximated by the muscles, and also held together by ligamentous structure, that the support of the stocking is sufficient. An enlargement of the upper end of the lower fragment, caused by a small amount of new callus, materially increases the firmness at the fracture. When the iron splint is on, she suffers but little inconvenience, although she cannot yet give up the cane, which habit has rendered apparently necessary.

This splint (before referred to) has answered so well, that I am tempted to describe it, not from its novelty, but simply from its perfect adaptation to such cases—an adaptation which, it is thought, may be advantageously repeated in similar injuries, not only in the leg, but also, when modified, in ununited fractures of the arm or forearm. It consists, as at present worn by Mrs. ——, of two narrow pieces of steel, A A, of the length of the limb, connected at the bottom, close under the sole of the shoe, by a cross-piece, C, of the same material. At the top, and also in the middle, and near the ankle, there is a connecting piece, well padded, to support the limb behind, B–D–E. A similar connecting piece, B, moving on a hinge, and fastening by straps, is attached to the top in front, while a padded splint, H, with a strap, supports the seat of fracture, and prevents any lateral or anterior deviation. The strap at F, tends to keep the apparatus in its place, and the shoe being made with stiff sides, supports the ankle. The foot being introduced into the shoe, and the straps all fastened, it will be found that the connecting bands at the top, by surrounding the limb, mainly support the weight of the body, the pressure being borne chiefly by the front of the head of the tibia, whilst the transverse ends of the bone being approximated so as to assist in the support, are prevented from deviating from their proper line, by the pad and piece in the middle.

Fig. 2.

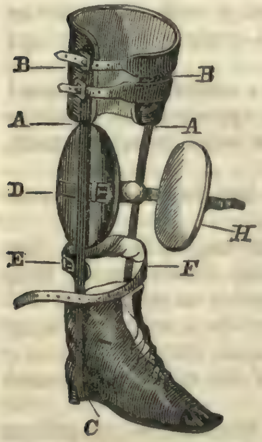
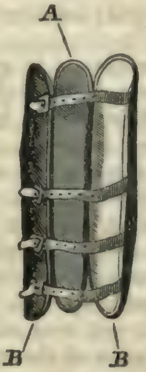


Fig. 3.



After the first operation, when the fracture was an oblique one, it was necessary to surround the leg with the jointed sheet iron pieces represented in fig. 3. In addition to which, the side splints, A, fig. 2, were longer, and consequently came one inch below the sole of the shoe. The patient, therefore, walked on the end of the splint, the foot not touching the ground, and the main weight of the body was borne by the knee in the same way as in the use of a cork leg after amputation. The movements even at this time were, however, more natural than is the case in most cork legs.

Now, supposing the case was a pseudarthrosis of the humerus or bones of the forearm, is it not probable that sufficient stiffness would be given to the part by an apparatus somewhat similar to fig. 3? Would not a patient be much better with the limb thus surrounded, than would be the case after amputation?

The femur would be an exception, but in the other bones of the extremities, a splint like fig. 2, would certainly give a more comely and useful limb than any false one that could be applied to a stump. Here, as in so many other instances, may amputation be regarded as indicating the deficiencies of surgery.

In reviewing the history of this case, we think that there can be no difficulty in tracing the cause of a defective callus, to uterine disturbance. Whatever may have been the peculiarities of treatment, even as viewed by those who may advocate other measures, nothing interfered with the first callus. Surrounded by every luxury, there was no article likely to prove useful, that was not to be had at a moment's notice. The patient's health, judging by her appearance, was most robust; her age highly favourable; the limb dressed with great care, and yet a deficiency of callus showed itself in a marked degree.

In the condition of the patient immediately after the first operation (excision and caustic), we also see a state of things that could not have been anticipated, but little reaction following measures that generally produce so much general irritation. Again, after the second operation (resection), we find a most severe train of symptoms, threatening life, and leaving her for days on the verge of the grave. The inflammatory action was here ample, but not too much; for though erysipelas attacked the limb several different times, it did not invade the portion around the fracture. Yet here the callus was very slowly formed, and when deposited for the third time, contrary to all reasonable expectation, disappeared. During the treatment, the effect of phosphate of lime was in no degree perceptible. Indeed, little benefit was anticipated, though the experiment seemed worth a trial.

The peculiarity of the erysipelatous attacks, not invading the leg, may, we think, be explained by the action of the bandage which surrounded it. As nothing has proved of much utility in this annoying complaint, we should feel strongly tempted hereafter to test the efficacy of this simple but powerful agent. Whether it was of use by supporting the capillary vessels and diminishing the circulation in the skin, or whether it acted like the bran dressing, which we have also seen check it, (by excluding the atmosphere and promoting perspiration,) must be as yet matter of theory. The result will probably be the same in either case.*

Judging, then, from our own experience in the operations performed in this instance, we most fully agree in the opinion so generally expressed, that these operations, as a class, especially resection, are among the gravest in surgery. In a similar case we should prefer trying the seton, or friction produced by causing the patient to use the limb, protected by some such apparatus as that above described, before resorting to any operation; and in few if any cases of false joint, as a general rule, would we be tempted to amputate.

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* Since the above was written, we have seen a paper by Assistant Surgeon E. J. Bee, U. S. Navy, in which a similar result, from the use of the bandage, has been obtained in the treatment of traumatic erysipelas. (See this Journal for October, 1847.) Our attention was first called to this action of the roller in 1839, in a case in which Velpeau applied the dextrine bandage for fracture, and though the lad had small-pox badly, few if any pustules showed themselves under the dressing, it acting as the gold leaf usually directed to save the face. In two bad cases of erysipelas, from injury, we have seen similar results; but to do good the pressure of the bandage must be moderate.

Art. VIII.—*Compound Dislocation of the Ankle-Joint.*

By Emery Bissell, M. D.

Miss J. K., aged twenty years, was thrown with great violence from a carriage, which was run away with by a frightened horse, on the afternoon of August 14th, 1844. The left tibia was dislocated inwards, and projected nearly four inches through a transverse wound of the integuments. These were much bruised, and the lower edge of the wound (about two and a half inches in length) very much "nipped," or doubled inwards. The upper edge embraced the bone with great firmness. By some persons present, and amongst the number one or two medical gentlemen, immediate amputation was urged as the only probable means of saving the life of the young lady. This she opposed most earnestly, and besought me, with much feeling, to attempt to save her limb if I thought there was even the most remote chance of success. The effort to do this, I had mentally resolved to make, and, of course, cheerfully acted in accordance with her wishes. Considerable difficulty attended the reduction from the closeness with which the bone was embraced by the integuments above, and the doubling of the lower edge of the wound, before mentioned. The first obstacle was overcome by freely dividing the integuments an inch and a half upwards, at right angles with the transverse wound. The second was removed by insinuating the fore and middle fingers of the left hand over the doubling of the lower edge of the wound, and drawing it steadily outwards, whilst the same fingers of the right hand were hooked over the lower extremity of the tibia, and the bone strongly pressed upwards. This operation, with moderate extension of the foot, succeeded perfectly in bringing the bone into its proper place. The wound was brought together by adhesive straps, aided by a stitch or two at the angles, was covered lightly with lint and compress, and the whole limb to the knee supported by a Scultet's bandage smoothly and lightly applied. The limb was then carefully laid on a pillow of oat chaff, in a fracture-box, the sides being supported by long bolsters of the same material as the pillow, from the knee to the foot. A full dose of opium was then given, the limb directed to be kept wet with cool water, merely dashed with proof spirits, in order to satisfy popular prejudice, and the patient left for the night.

15*th*. Patient has passed the night comfortably, and is in good spirits this morning. A good deal of bloody and serous discharge from the wound. Limb somewhat swollen, but not highly inflamed. Integuments bruised, and of a deep livid colour. Gave a dose of sulphate of magnesia, followed by a weak solution of tartar emetic every two or three hours. Dressings continued;—wet lint and compress, with a diluted solution of chloride of soda. From this time to the ninth day, the case went on favourably; a free and healthy suppuration occurred about the fifth. The integuments, however, still kept their livid appearance. Treatment mildly antiphlogistic, with a free use of opiates—dressings the same. On the morning of the tenth day, on removing the dressings, the whole of the integuments, below the original wound, came away with them in a sphacelated state, leaving the internal malleolus bare, and a deep cavity below and behind it. Same treatment continued. On the twelfth day from the injury there was a discharge of healthy pus—granulations were beginning to appear—symptomatic fever had subsided—patient had a good appetite—rested and slept well at night, with the aid of one grain opium every five hours.

Aug. 28th. Fifteenth day. Patient cheerful; has good nights; relishes food well, which she is allowed to select according to inclination. Wound looks well, and is filling up with good granulations. Continue treatment.

Sept. 5th. Patient in fine spirits and full of hope. Case in every respect looks favourably. It is evident, however, that an exfoliation of the malleolus will take place. As the surface of the tibia is inclined to slip a little (laterally) upon the astragalus, a light splint was applied upon the outside of the limb from the knee to the foot. A similar one was applied to the inside some days since. Eversion of the foot is prevented by confining it to a movable foot-board, fitted to the fracture-box, just filling it from side to side, and kept in place by a narrow piece across the top.

21*st.* Patient rather indisposed for a few days, in consequence of non-appearance of catamenia. Appetite diminished. Directed Huxham's tincture of bark, with a moderate use of Madeira wine.

Oct. 9th. Everything looks well. As the straight position of the limb has become rather irksome, the fracture-box was exchanged for the double inclined plane, the limb resting on the chaff pillow as before, and supported laterally in the same way. Foot also secured by a contrivance similar to the other. Wound fast filling up and contracting its boundaries. Malleolus black and dry.

21*st.* Sore is healed except the space occupied by the dead bone. The whole may be covered by a crown-piece. Patient improves in strength, and amuses herself by reading, sewing, knitting, &c. Removed the limb from the double inclined plane, and placed it in a hollow splint, which allows the patient to be placed in a chair, and to enjoy a change of position in various ways. Dead portion of bone is becoming loose. From this time to the middle of December, there was a steadily progressive improvement in every particular. As the dead bone had become quite loose, it was removed by slight effort. But I found, to my surprise, that it consisted of the whole articulating surface of the tibia—the whole of the epiphysis. On its outer surface, the fragment is about an inch in length, presenting perfectly the groove in which the fibula is lodged. In the middle it looks as if it had been scooped out, and occupied by a conical extremity of the shaft of the bone, so that in the centre it is not much more than a line in thickness.

Jan. 8th, 1845. Sore is nearly healed, but with a deep depression in place of the malleolar process. Splint left off. The joint supported by a short hollow splint, extending six or eight inches above it, formed of very compactly hammered sole leather, and fitted very neatly to the limb, and embracing the inner half of the foot. Have used for some time a light flannel bandage.

Feb. 18th. Limb is sound. The depression left by the removed bone is considerably less, and the whole foot is regaining its original contour. Patient feels remarkably well, and begins to use crutches. Contrary to my fears of a complete anchylosis, I find the joint allows of considerable motion.

July 1st. Miss K. now walks with a little aid from a single crutch. Can bear the whole weight of the body upon the lame foot for a short time. So little is the deformity, that when the foot is dressed with shoe and stocking, a stranger would not notice it. There will be only a slight permanent depression in place of the malleolus, and the motion of the joint is growing more and more free.

Sept. 1846. A trifle more than two years from the time of the accident. Miss K. walks well without crutch or staff; performs all kinds of domestic employment with facility, and ascends and descends a long flight of stairs without difficulty. Motion of the joint quite free. My own gratification in an event so favourable is only equalled by her gratitude for the preservation of the limb.

Nov. 5*th*, 1847. I met the young lady this day on the side walk in our borough, three miles from her home. She walks, apparently, as well as any one; says her limb is continually becoming stronger, and that the joint is nearly or quite as flexible, and admits of as much freedom of motion, as that of the uninjured limb.

Remarks.—This case adds another to the list of those which mark the triumphs of modern surgery. I was probably more sanguine in my hope of saving the limb, and possibly more persevering in my efforts, from the fact that I had just been reading the reports of Sir Astley Cooper upon the same subject. I am, however, disposed to think I should have saved myself much trouble, and considerably shortened the period necessary to a complete cure, had I resected the extremity of the tibia the length of half an inch or so previous to the reduction. Whether the removal of the extremity of the tibia would not be advisable in all cases, where reduction cannot be effected with facility, is an important question which the wise and experienced of the profession should decide. The cases reported by Sir Astley Cooper, in which it was done, seem to have terminated most favourably.

NORWALK, *Conn.*, *Nov.* 8, 1847.

ART. IX.—*Successful Treatment of a case of Traumatic Tetanus, in which the Vapour of Sulphuric Ether was employed.* By E. W. THEOBALD, M. D., of Baltimore, Md.

ON the 17th Sep., 1847, I was requested to visit Jacob Fifer, aged 27, a native of Germany, and by occupation a quarry-man. Some hours previous to my visiting him, he had received a severe injury of the left hand, by the accidental explosion of a blast. The little finger and its metacarpal bone, together with the soft parts covering it, had been blown off; the first phalanges of the ring and middle fingers broken; the metacarpal bone of the ring-finger, broken and exposed; and the soft parts in the palm of the hand torn across from the ulnar side to the metacarpo-phalangeal articulation of the thumb.

The wound had been dressed immediately after the accident, by my friend Dr. Vanbibben, who transferred the case to me. As there had been considerable loss of blood, I removed such dressings only as interfered with the proper application of my remedies.

The first question, which naturally enough presented itself to my mind, was, should an attempt be made to save the remaining portion of the man's hand? The dorsum of the hand had received no injury; the thumb and index finger were perfect; the circulation throughout the extremity was good; the patient possessed a fine constitution, and was greatly averse to the removal of the hand. Under these circumstances I felt justified in making an effort to save the member.

Accordingly, I ordered the cold water dressings to be unremittingly applied; protochloride hydrarg. grs. x, and tinct. opii gtts. l, were administered, with instructions to repeat the anodyne in five or six hours if the pain continued severe. In the course of a few hours, however, the pain for the most part subsided, and the anodynes were omitted except at night.

The calomel produced the desired effect; and the symptomatic fever did not run high.

On the 19th, suppuration was established, the water dressings were set aside, and the hand placed in a warm poultice of bread and milk.

On the 22d, the sloughing process commenced, and the fermenting cataplasm was substituted for the bread and milk poultice. Although my patient's suffering had not been great since a few hours after the occurrence of his misfortune, yet, in consequence of his inability to sleep at night, and a desire on my part to ward off tetanus, which I had reason to fear might supervene, I had allowed the quantity of laudanum to be gradually increased, and at this time he was taking 200 drops in the course of the night. Under this plan of treatment my patient appeared to be steadily improving; the wound was granulating, and suppurating freely and healthily, and the cut beginning to cicatrize.

Upon inquiry, on the morning of the 30th, I learned of my patient that he had been suddenly awakened out of sleep the night previous, by a slight twitch of the muscles in the palm of the wounded hand. Alarmed at any symptom which might be considered a forerunner of tetanus, I investigated his case with more than ordinary care for further evidences of the approach of that fearful malady, but could elicit none. I visited him in the afternoon of the same day, and was pleased to learn there had been no return of the spasm.

On the 1st October, however, the attendants informed me he had had several very slight spasms in his hand whilst asleep. At this period he appeared to be doing remarkably well in every respect, and, but for those slight muscular twitchings, I should not have felt the least uneasiness about his case.

Unwilling at this time, to sacrifice his hand, without a more positive assurance of the approach of danger, I determined to place my patient under a course of treatment similar to that which might be adopted, were I convinced tetanus existed. I therefore directed a pill composed of calomel, grs. iij, and pulv. opii gr. i, to be given every two or three hours; acetum opii gtt. xx, three times daily, and sinapisms to the abdomen and along the spine.

The case progressed without further advance of the tetanic symptoms, until the night of the 4th. I was called to him early on the morning of the 5th; the spasms in the hand had increased, and extended to the muscles of the arm. He complained of an uncomfortable feeling about his neck, and of difficulty in swallowing. His skin was bedewed with a warm perspiration, and his pulse 100. On examining the wound, I found the granulations flat and dry. I determined to take the hand off immediately, but before doing so, requested the family to call in Prof. N. R. Smith, that I might have his counsel in the case. In a short time I had the satisfaction to meet Dr. Smith, who agreed with me in opinion, that the symptoms were decidedly tetanic, and that the operation was expedient. I proceeded at once to amputate the hand, assisted by three of my pupils. After the stump was dressed, there were two or three spasmodic contractions in the arm, at distant intervals, which, however, ceased entirely by night. Just before the operation, I gave the patient forty drops of acet. opii, with instructions to repeat the dose at bed-time, and to continue the pills of calomel and opium.

6 *P. M.* Patient calm and comfortable; when he falls asleep, he is annoyed by slight spasms of the muscles of the neck, and says there is some degree of stiffness in that region. No pain at the præcordia, but hardness of the abdominal muscles to a limited extent. Sinapisms were ordered to be applied to the abdomen and spine, and as his bowels were confined, an enema was directed to be given.

6th, 9 *A. M.* Had a comfortable night; bowels moved, and stump easy; increased amount of spasm and stiffness about the neck, with some degree of trismus. Skin wet with perspiration; pulse 120. ℞.—Anodynes and calomel. 6 *P. M.* More spasm; slight opisthotonos, with increased hardness of the abdomen; deglutition very difficult; jaws nearly closed; pulse 120; great despondency and restlessness, and free perspiration. ℞.—Anodynes increased; calomel continued; mustard applications renewed, and nourishing broths as diet.

7th, 9 *A. M.* Rested badly last night; symptoms all aggravated. Dressed the stump; it looks pretty well, one-fourth united; pulse 120. On this occasion I provided myself with sulph. ether and an inhaler, as I felt disposed to make trial of this new and powerful remedy. I proceeded to administer it without explaining to my patient the nature of the agent, or the objects I had in view. At first there was some difficulty attending its exhibition, in consequence of the irritation it inflicted on the glottis. This, however, soon subsided; he then began to complain that "it made him feel bad," and very shortly pushed the tube from his mouth, and said everything looked black, and refused to breathe it any longer. I persuaded him, however, to breathe it again for a short time, when he fell asleep; the time occupied from the commencement of inhalation until insensibility was produced, being about two minutes. His pulse was accelerated ten beats; breathing perfectly easy; whole muscular system relaxed; and no lividity or unnatural expression of the countenance. I permitted him to sleep fifteen minutes, when I aroused him by wiping his face and forehead with cold water. When consciousness returned, he stated he had been dreaming; drowsiness remained for an hour after. ℞.—Anodynes and calomel. 6 *P. M.* I find my patient evidently better; has had very little spasm through the day, and only when asleep. ℞.—Anodynes and calomel.

8th, 9 *A. M.* Rested well last night; is rather stupid, and disposed to sleep, and is troubled with frequent yawning, which is exceedingly painful, as he cannot open his mouth. For fear of narcotizing him, I directed the anodynes to be discontinued, and ordered strong coffee and nourishing broths to be given him. Omitted the ether also, on account of the apparent cerebral oppression. 6 *P. M.* The spasms have materially increased; there is more stiffness about the neck and jaws; some contraction of the corrugator supercilii and levator labii superioris alæque nasi muscles, giving to the countenance a very distressed and painful expression; deglutition more difficult; pulse 100; not so drowsy. ℞.—Acet. opii gtt. xl at bed-time, and repeat it in the course of the night if he should not rest well; and apply mustard poultice to the abdomen.

9th, 9 *A. M.* Has had a bad night; suffered very much with the spasms in his back and extremities; abdominal muscles as hard as a board; jaws firmly locked; scarcely able to swallow anything; and great despondency. Administered the sulphuric ether; a few inspirations rendered him insensible; pulse unaffected; expression of the countenance greatly improved; no lividity or paleness of the lips and face; breathing easy; and muscles relaxed. He slept in this condition for fifteen minutes; drowsiness remained for half an hour after. ℞.—Hydrocyanic acid gtt. xxiv; aqua distill. ℥i. A teaspoonful to be taken every five or six hours; a blister to the nape of the neck; sinapisms to the abdomen; and as I discovered slight fetor of the breath, I discontinued the calomel and opium pills. 5 *P. M.* Symptoms all improved; pulse 90; countenance bright and cheerful; has had a comfortable day, and regrets he cannot eat more, as his appetite is good. Four or five inspirations of the ether vapour were sufficient to put him asleep; no unnatural expression of the face, or discoloration of the lips; breathing perfectly easy and natural; pulse unaffected. He slept for half an hour under its influence without spasm; just as its effects were passing off, however, he had two very slight ones. ℞.—As before, and the blister dressed with a bread and milk poultice.

10*th*, 9 *A. M.* Patient rested very well through the night; had a few trifling spasms, and those only when asleep. There is less rigidity of the muscles of the neck and jaws; he complains of some pain in the stump, accompanied by starting of the muscles of the arm. Upon examination, found a superficial slough about the size of a shilling on the lips of that portion of the stump which had not united. Applied fermenting cataplasm to the stump; directed the acid to be continued; and chicken soup diet. No unusual circumstance resulted under the employment of the ether this morning. 5 *P. M.* Patient about the same as at last visit; his bowels had been moved twice in the day. Sulphuric ether administered with similar effects. ℞.—Acid, and acet. opii gtt. xxx, if the bowels were too frequently acted upon.

11*th*, 9 *A. M.* He does not feel so well this morning; thinks he slept too much; bowels had been moved twice in quick succession, and he took the anodyne as instructed. Pulse 92; expression of countenance improved; rigidity of neck and jaws about the same. On account of the drowsy condition in which I found my patient, I omitted the ether, and diminished the dose of the acid to one-half. 5 *P. M.* Pulse 84; slept a good deal through the day; more pain in the stump, and increased spasm; bowels moved once. Ether given. ℞.—Acid.

12*th*, 9½ *A. M.* After visit, and his breathing the ether last evening, he appeared decidedly better, and was more than usually cheerful until 9 *P. M.*, at which time he had a chill, succeeded by cold perspiration; he remained in this condition for an hour, when he became warm, the perspiration continuing. So soon as warmth returned, he became stiff all over (to use his own expression). From this time he rested tolerably well, and had very little spasm or pain in the stump. Pulse 90, soft and full; tongue clean; appetite and spirits good; bowels moved in the night.

He expressed himself as much pleased with the effects of the ether the evening before; thought it was benefiting him very much, and says he has had no bad spasms since. He took the ether this morning cheerfully, indeed asked for it, and breathed it well. Pulse, lips and face unaffected by it, except so far as it relaxed the muscles of the angles of the mouth and eyebrows, removing that peculiar frown and distressed expression which have existed throughout. For fifteen minutes he did not move a muscle; he then yawned, and remained in a gentle quiet sleep for fifteen minutes longer, when he had three slight spasms; so slight, indeed, that although I was standing over the patient, carefully watching for any phenomena which might occur, I should scarcely have observed them, had not his wife remarked, "that is the kind of spasm he has now." About this time there were several gentle starts in the muscles of the stump also, which appeared to be unconnected with the former. In five minutes more he awoke, feeling, as he said, very comfortable. ℞.—Acid. 5¼ *P. M.* Passed a pleasant day; no change in condition since morning visit. ℞.—Acid. Among other objections urged against the employment of sulph. ether vapour in surgical practice, that of its inducing a gangrenous condition of stumps, mentioned in a letter from Dr. James H. Pickford, and published in the Oct. Number of the *Amer. Journ. of Med. Sci.*, occurred to me; and fearing the ether might have some agency in the production of the slough on the stump of my patient, I left it off. ℞.—Acid, and if much pain or restlessness come on in the night, to give acet. opii gtts. xxx.

13*th*, 9 *A. M.* About midnight patient took 30 drops of acet. opii, and slept pretty well until morning. In the course of the night, however, he had three slight chills, two trifling hemorrhages from his nose; his bowels were moved, and there was a material augmentation in the number and violence of the spasms. This morning he complains of more stiffness of his jaws and neck than he has had for several days past; pulse 95; tongue clean; distressed countenance; and he is very drowsy. ℞.—Acid, and the opiate should circumstances require it. 5 *P. M.* Pulse 118; jaws closely and firmly locked; deglutition almost impracticable; bowels have not been moved; has taken no nourishment since last visit; spasms very severe and frequent; considerable degree of opisthotonos. ℞.—A dose of oleum ricini; hydrocyanic acid gtts. ij every four hours, and acet. opii gtts. xxv at bed-time.

14*th*, 9 *A. M.* Slept a portion of the night only; spasms still more frequent, violent, and exceedingly painful; bowels moved by the oil; pulse 120; some pain in the stump; slough has not extended beyond its original limits. In consequence of the aggravated condition of all the tetanic symptoms, and the conviction on my mind that my patient must die if something more was not done for him than I was then doing; and as the ether had appeared to mitigate the violence of the symptoms whilst I employed it, I determined to have recourse to it again, regardless of any pernicious effect it might exert upon the stump. Accordingly I administered it. The immediate effects did not deviate in the slightest degree from those I had observed invariably to attend its exhibition in the case. ℞.—Hydrocyan. acid gtt. ij every four hours. 5 *P. M.* Has had a comfortable day; several light spasms, but not severe enough to awaken him when asleep. Jaws not so closely locked; could pass my little finger between his teeth with ease; pulse 82, and natural; stump improving. ℞.—Acid, as before.

15*th*, 9½ *A. M.* Slept much better than the night before; had several pretty strong spasms; has had good deal of pain in the stump; easier this morning; there is less trismus; deglutition improved; bowels moved this morning, and he is quite cheerful; pulse 95. Healthy granulations have taken the place of the slough on the stump. Breathed the ether vapour; whilst under its operation, his pulse fell to 86. ℞.—Acid. 5 *P. M.* Slept half an hour this morning after inhaling the ether, and has appeared better ever since; but little spasm, and that confined to the stump and arm; complains of severe pains in the stump; appetite good, and he has taken freely of nourishing broths. Pulse 80. ℞.—Acid.

16*th*, 9½ *A. M.* Comfortable night; pain in the stump rendered him a little restless for a time, but this morning it is comparatively easy; has had but few spasms. He still complains occasionally of that universal stiffness which came upon him on the night of the 11th; says whenever he attempts to move himself, his muscles all become stiff; bowels have been moved; tongue clean; appetite very fair, and pulse 90. Inhaled the ether. ℞.—The acid. 5½ *P. M.* Easy all day; spasms fewer and lighter; pulse 82; expression of countenance almost natural; less trismus and difficulty of swallowing.

17*th*, 10 *A. M.* Rather restless last night; some increase in the number of spasms, but none in their force; they are somewhat altered in character; they do not come on suddenly and extend rapidly as heretofore, but begin very slowly and extend gradually from the stump to all the voluntary muscles. He indulged in a supper of meat pudding last night. Not much pain in the stump; much less trismus; pulse 100. Administered ether, slept for half an hour. ℞.—The acid. 5 *P. M.* Spasms confined to stump all day; appetite good; tongue clean; slight pain in the stump; pulse 85.

18*th*, 9½ *A. M.* The pain in the stump did not permit him to sleep well last night; had a few weak spasms whilst asleep, but not severe enough to awaken him; less trismus; bowels moved; pulse 85. Took ether. 5 *P. M.* Pulse 88; bowels moved; stump painful; spasms very weak. Discontinued the hydrocyanic acid.

19*th*, 10 *A. M.* Did not rest well in consequence of pain in the stump; good many weak spasms; trismus, stiffness of neck and difficult deglutition almost entirely disappeared; bowels moved; pulse 90; skin cool and pleasant; tongue clean, and patient in fine spirits. By accident, omitted taking the ether out with me. ℞.—Hydrocyanic acid gtt. ij every four hours. 5 *P. M.* Has had less pain to-day; but few spasms; bowels moved; pulse 90. Deferred giving the ether. ℞.—Acid.

20*th*, 9½ *A. M.* Had a dreadful night; severe pain through the stump and arm; great increase of spasms; pulse 88. Inhaled the letheon. 5 *P. M.* Is better in every respect.

21*st*, 9½ *A. M.* Rested far better than the night before; had less pain and fewer spasms. Ether vapour administered.

22*d*, 9½ *A. M.* Rested very easy all day yesterday and last night; had a few very slight spasms; complains he cannot get enough to eat; bowels moved; pulse 90. Sat up in a chair for half an hour yesterday evening. From this time, I left off all remedies; the tetanic symptoms which had grown almost imperceptible, disappeared altogether by the 29th. I continued my visits until the morning of the 4th of November, when I found him as follows.:—No spasms or pain since 29th ult.; bowels regular; sleeps well all night; appetite excellent; pulse natural; gaining his strength very fast, and has been visiting his friends in the neighbourhood.

As Prof. Smith felt considerable interest in the case, he honoured me with his presence and counsel on several occasions in the progress of the treatment.

BALTIMORE, *Nov.* 30*th*, 1847.

ART. X.—*Fracture of the Thigh successfully Treated.* By EZRA MICHENER, M. D., of Chester county, Pennsylvania. [With a wood cut.]

IN the exercise of his profession, the physician will often meet with anomalous cases which require anomalous treatment, and which sometimes impose a severe tax upon his ingenuity and skill. The following case will illustrate my meaning; and while it will claim but a small portion of the reader's time, may afford a practical suggestion to some junior member of the profession.

W. L., a young man in very delicate health, and possessing a highly impressible constitution, sustained a fracture of the upper third of the left femur, and was otherwise considerably injured by the upsetting of a cart on the 26th of the 3d month, 1846.

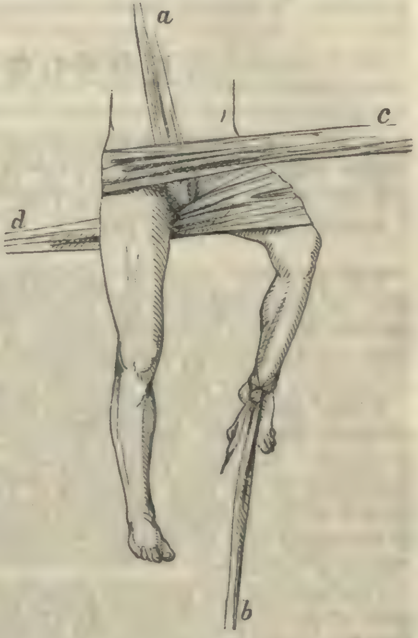
The bad state of his health, and the condition of the injured limb, unfortunately led his medical adviser to believe that he could not bear the strict confinement usual in such cases; and, consequently, light and insufficient dressings were applied. The constant motion of the fragments which the insecurity of the dressings allowed to take place, and the consequent laceration and irritation of the soft parts, from the progressive overlapping of the bones, produced a high degree of irritative fever. This was erroneously attributed to confinement, and became an inducement to relax the dressings still more. The fragments had now overlapped more than *two inches.* After the lapse of several weeks, the irritation nearly subsided, and union was supposed to have taken place. The dressings were removed, and the patient allowed to rise from his bed. In a very few days the slight exertion which he made, produced a rapid increase of pain, soreness, and swelling in the limb; the thigh became crooked, and the foot was drawn more and more upwards.

I saw the patient on the 4th of the 6th month, just *ten weeks* after the occurrence of the accident. He lay upon his back; the thigh was considerably swelled, and very painful to the slightest touch or motion. The pelvic muscles, acting upon the trochanter, had drawn the upper fragment upwards to near a right angle with the pelvis, while the fragments necessarily formed a similar angle with each other. The foot was drawn up full *seven inches* above its fellow; but the tape measure, following the angulation of the bone, gave a shortening of only *two inches*, as already mentioned, from the overlapping of the bones. The fractured bone appeared to be surrounded by an enormous spongiform callus of four or five inches diameter. Such a callus may reasonably be expected to form where the fragments are allowed continually to change their position, and to disturb the restorative operations which are in progress around them.

To me this case was a perplexing one. The bad health of the patient, his already long confinement, the heat of midsummer, and, still more, the unfortunate state of the limb, presented serious obstacles to a cure. After a little reflection, I proposed and applied the following dressings: (See the accompanying diagram.)

1. The counter-extending band *a* was passed round the groin of the right or sound side, and securely fastened to the head rail of the bedstead. It was placed on the *right side*, in order to allow the *left side* of the pelvis

to rotate downwards, and thus, in some degree, to relieve the tension of the displacing muscles.



2. The extending band *b* was then put round the ankle, and carried over a pulley in the foot-board, and kept tense by a weight.

3. A broad muslin band *c* was then passed round the *right hip*, one end of which was carried beneath the pelvis, the other across the pubis, and secured to the bed-rail on the *left side*.

4. A similar band *d* was next carried round the outside of the fractured limb, the ends of which were passed under the *right* thigh, and over a pulley in the *right* bed-rail. This band was also kept tense by a variable weight.

A mere glance at the rude diagram, will show the general design of these dressings. The first and third bands were mere retainers to prevent the others from displacing the patient. The second was designed to make gradual and constant extension; the intensity of the force to be regulated by circumstances. The fourth was mainly designed to co-operate with, and aid the second in straightening the limb, by directly antagonizing the displacing muscles, with a constant and graduated force; but it was also a prominent intention of this band to *compress* the too redundant callus, and promote its absorption. I was happy to find these intentions completely fulfilled. The patient passed a comparatively comfortable night, and on the following day, it was found that the limb had been gradually and insensibly brought to its proper position—abating the original two inches in its length. The prospect of two or three months additional confinement had very much depressed his spirits; but when he found what a remarkable change had been produced in a few hours without suffering, or even his being conscious of it, he zealously entered into the measure. These were the only dressings made use of during the cure. The exuberant callus was rapidly reduced to a proper size and firmness; the pain and irritation soon subsided, and in a few days the bone began to show signs of consolidation. At the end of *eight weeks*, from my first visit, he was allowed to rise from his bed. Under the circumstances which have been related, it was believed inexpedient to attempt a dislodgment of the overlapped bones—he, therefore, got up with a shortened limb; but he now walks with only a slight limp.

MONOGRAPH.

ART. XI.—*A Statistical Inquiry into the Causes, Symptoms, Pathology, and Treatment of Rupture of the Uterus.* By JAMES D. TRASK, A.M., M.D., Brooklyn, New York. Read before the Brooklyn Medical Association, Oct. 14th, 1847.

THE principal object in undertaking the examination of this subject after the plan adopted in the following paper, was that of determining, if possible, the most successful course of treatment of rupture of the womb, when accompanied by certain conditions which embarrass delivery, and for our conduct under which we have now no definite guide.

At the present day, we imagine that there are few, if any, who would advocate the course formerly pursued, of abandoning all cases of rupture to nature. For many years the profession in England and in this country, influenced by the high authority of Dr. William Hunter, and afterwards by that of Dr. Denman, carefully abstained from any attempt at delivery, as calculated only to increase the patient's suffering, and to diminish her chance of recovery.

This opinion and practice prevailed, notwithstanding several successful cases of delivery in France and Germany, until the year 1784, when Dr. Douglas resorted to artificial delivery, and his patient recovered. Since his time, the universal judgment of the profession appears to be, that delivery, when practicable, should in all cases be resorted to. When a favourable condition of the soft parts, and a proper correspondence between the head and the pelvis will allow of the introduction of the hand, and delivery by version, all authorities agree in recommending it. But when obstacles to a speedy and easy delivery exist, as from contraction of the edge of the rent, after the escape of the fœtus into the peritoneal cavity, or from an undilated os uteri, or from a contraction of the pelvis, or partial closure of the vagina, the rule of practice is by no means determined, and great diversity of opinions exists as to the proper course to be pursued. In each of these cases, we are advised by different authorities to opposite lines of conduct.

Of rupture occurring during pregnancy, *Burns*, p. 266, after discountenancing forced dilatation of the os, and preferring to it the Cæsarean section, adds, "but this ought not to be performed, unless we can thereby save the child, or the patient has reached an advanced period of pregnancy." "To leave the case to nature, is most likely to be successful, especially when the rupture happens in the early months." Of rupture during parturition, at page 478, he remarks, "when the os uteri is rigid, and very little dilated before the accident happens, and cannot be opened without extreme irritation, or when the uterus is spasmodically and violently contracted between the rent and the os uteri, I consider attempts to deliver as adding to the danger. In such cases, and in deformity of the pelvis, we must perform the Cæsarean section or leave the case to nature." "If called early, while the child is yet alive, before the abdominal viscera are irritated by the presence of the fœtus, we are warranted to extract the child by a small incision;" and even after many hours have elapsed, he thinks gastrotomy by a small incision offers a better chance than a delivery through the rent, though he does not venture an opinion on the relative chances of gastrotomy and non-interference.

Merriman, in his *Synopsis*, (James' edition, p. 151,) says, "if some hours had elapsed after the parts had given way, or if there were a difficulty in passing the hand on account of contraction of the uterus, it would then perhaps be more prudent to leave the event to nature."

Velpeau, in *Arch. Gén. de Méd.*, tom. iii. 4th series, considers it improper to recur to extreme surgical means, until all attempts to return the child into the uterus, whether it has escaped either partially or wholly from it into the abdominal cavity, have failed.

Dewees says, when the child has escaped into the abdomen, "the delivery, *per vias naturales*, may be either difficult or impossible, even in a well-formed pelvis;" "the only chance in this case is, the immediate performance of gastrotomy; should a contracted pelvis complicate the case, the latter operation is the only alternative."

F. Ramsbotham (*Process of Parturition*), remarks, "feeling as I do, that to leave the child in the cavity of the belly is almost certain death to the mother, I should seriously entertain the question whether the parietes of the abdomen should be divided and the child extracted by that means, or whether the patient should be abandoned to the chance of what nature might effect; and the answer must depend entirely on the circumstances of the individual case. If she were in tolerably good spirits, if she had not suffered so great a shock as usual from the accident, particularly if, after explaining to her what had occurred, she were anxious for the operation to be performed, I should have no hesitation in undertaking it. But if I found her sinking, if the powers of life were ebbing fast, and particularly if thirty or forty minutes had elapsed since the rupture, and the movements of the fœtus had quite ceased, I should by no means sanction the incision, because of the painful nature of the operation, and because I should presume it would avail nothing, and might probably hasten her death."

Dr. Davis (*Obstetric Medicine*), merely says, "inasmuch as laceration of the womb is not an essentially mortal accident, such services (delivery) must unfortunately be sometimes undertaken, and therefore ought to be judiciously executed." "We should interfere without loss of time when the circumstances might appear urgent and desperate, and abstain from such interference when the nature of the symptoms might promise a probable successful issue without it."

Jacquemier (*Man. des Accouch.*, tom. ii. p. 300), says, "when the contraction of the rent or of the neck, which cannot be overcome with advantage, in case it remains rigid or imperfectly dilated, will not allow the hand to penetrate the cavity of the peritoneum, or when the pelvis is contracted to the degree of rendering the extraction of the fœtus uncertain even after diminishing the volume of the head, there remain no other resources than gastrotomy, or leaving the whole to nature." Gastrotomy, he says, offers chances of recovery less unfavourable than those of abandonment, especially if the operation be performed before symptoms of inflammation present themselves.

Dr. Robert Lee, in his late work, p. 436, advises resort to perforation when the head presents; and that when the child has passed through the rent into the abdomen, an attempt should be made without delay, to deliver by grasping the feet. "If a considerable time has elapsed after the accident, and the uterus has contracted so closely that the hand cannot be passed through the orifice and the rent, the best practice would be to leave the case to nature. Some have recommended gastrotomy under these circumstances; but the child is already dead, and the mother could hardly be expected to survive after such an operation." If the fœtus has escaped into the peritoneal cavity, the patient, he says, may recover without gastrotomy.

Colombat (*Amer. edition*, p. 236), says, "if the child have not passed entirely into the abdominal cavity, we should always endeavour to terminate labour by the natural passages; but in the contrary case, recourse must be had to gastrotomy, because this extreme means offers some chance of safety to the mother, and especially to the child, which would indubitably perish unless we should act with great promptitude."

"But what is to be done," inquires Dr. Blundell, "where the fœtus is in the abdominal cavity and cannot be reached, the child being inaccessible in consequence of the contraction of the aperture? Why, if there seemed to be a disposition to rally a little, I should feel inclined to try palliatives, if these were indicated, and I should leave the patient mainly to the natural resources." "But what if the child should escape into the peritoneal sac? and if, further, the symptoms, being most alarming, there should appear to be no hope for the woman in her natural resources? Why, in such cases, it would be for sober consideration, whether it might be advisable to have recourse to abdominal incision, provided the patient would heartily consent." The success of one case referred to by him, he thinks, offers encouragement, but he inquires in a note, does it "belong to an anomaly or a general principle?"

Dr. Collins, in his "*Practical Treatise*," is decidedly in favour of perforating the head when it presents and does not recede. "When the child has escaped out of the uterus, it is now the general practice, and undoubtedly the best, to introduce the hand through the lacerated parts into the cavity of the abdomen, and bring down the feet." "In cases where laceration has occurred previous to the os uteri being dilated, it is thought the best chance of recovery would be to open the parietes of the abdomen, cut into the uterus, and so extract the child." This, he thinks, can scarce ever occur except as the result of external violence.

Dr. James Hamilton (*Pract. Observ.*, p. 111), says, "if, from the state of the passages, the infant cannot be drawn forward through the usual apertures, the parietes of the abdomen should be divided."

Churchill (*Amer. edit.*, p. 372), says, "in some cases of ruptured uterus, when delivery is imperative, but impracticable, *per vias naturales*, the Cæsarean section has been proposed. It appears to me the additional risk from the operation, renders its propriety very questionable."

Among these, it will be seen that there is a great variety of sentiment as well as contrariety. Thus Blundell and Davis would not attempt delivery so long as there appeared to be any chance of recovery undelivered. Lee and Merriman would abandon the woman unconditionally when the rent has become diminished by contraction. Burns and Ramsbotham would be rather disposed, under these circumstances, to practise gastrotomy early, the former by a "small" incision. Blundell would wait until there should be no chance of recovery if left alone. Velpeau would try every other mode before resorting to gastrotomy. Dewees, on the contrary, says the only chance is in its immediate performance. Churchill considers its propriety very questionable. Jacquemier would perform gastrotomy where there should be so great contraction as to render it doubtful whether the fœtus could be extracted after perforation. From the tenor of Dewees we infer that he considers it expedient in contractions of a less degree than what would absolutely prevent delivery *per vias naturales.*

These directions are given, for the most part, by those who are regarded as of standard authority; and the countenance of either would be considered a full justification for following the course recommended by him; but where there is so great disagreement as to the proper course, it is evident that they cannot be regarded as equally safe guides.

There is, then, no established rule of practice under the circumstances to which we allude. By men of equally high reputation we are advised, to abandon to nature, and to practise gastrotomy, in cases of rupture and escape of the fœtus; and when, from a contraction of the pelvis, or an undilatable os uteri, or contraction of the vagina, serious obstacles are presented to speedy delivery, some advise the removal by the natural passages of the fœtus, mutilated, while others affirm that the abdominal section affords the patient the best chance of recovery.

Since neither of these opinions can be referred to as of controlling authority, were it not for the acknowledged great fatality of the accident, under any course of management, he who practised the more heroic course would be censured by those who have taken their rule of practice from Merriman, Blundell, Davis and Lee; and the disciples of the latter charged with culpable neglect, by those who believe in the propriety of active interference.

The difference in individual opinions may arise from a mere partial examination of the subject, or from prejudice in favour of or against particular operations under any circumstances; and especially from the result of cases in which each may have happened to be personally concerned. A successful case of gastrotomy would be pretty certain to induce a repetition and recommendation of that practice under like circumstances, while an unsuccessful termination would probably discourage from a similar attempt in future.

Although rupture of the uterus is comparatively a rare accident, the determination of the practice to be pursued under all conditions of its occurrence, is a matter of the highest practical importance. If the chance for the unfortunate patient's recovery is at the best small, it surely is a matter of great moment, under circumstances of peculiar difficulty, to know what course presents the greatest probability of a favourable issue. In other words, it is our duty to inquire, which places the woman in the most favourable condition for recovery, when the fœtus has escaped into the abdomen, and the uterus is contracted—the abandonment of the patient to the resources of nature, or delivery by gastrotomy? And when, from any cause, such a disproportion exists between the fœtus and the maternal passages, as to render delivery *per vias naturales* difficult, does the prompt removal of the fœtus, by an operation itself severe, but still of very short duration, and which allows the patient almost at once to rally, or the tedious, painful, and often long protracted procedure of dragging it, mutilated, through the natural passages, afford the best chance of immediate security, and place her in the best situation for ultimate restoration to health?

Rupture of the womb is undoubtedly one of the most appalling accidents that can complicate labour. Interference must be judicious; delay may compromise the patient's existence, and improper interference may hasten the fatal end. Probably the accoucheur is never called to act under circumstances in which he feels more the need of the support afforded by well established principles of action; not only as a relief for the anxiety by which he is oppressed, but that he may be secure from the charge of rashness on the one side, and of incapacity and inertness on the other.* It is true, that in the instances just spoken of, in a medico-legal point of view, either course of conduct is perfectly justifiable, in the present absence of unequivocal authority for one or the other; but, nevertheless, it must be admitted, that this fact is but a proof that the principles of practice should, if possible, be determined. Especially is it desirable that we should be acquainted with every circumstance that may materially affect the issue, if what F. Ramsbotham states is generally true, where he says, p. 425, "I have seldom known a case in which the uterus ruptured, where the attendant was not more or less blamed."

Such principles can only be discovered by ascertaining the collective experience of the profession at large; and this can be obtained only, by a careful comparison of the cases reported by authors on midwifery, and of such as form contributions to periodical medical literature. The great design of these contributions is, or should be, the recording of isolated facts, which, taken by themselves, may be entertaining from their unusual character, and perhaps instructive from the practical lessons they convey, but whose highest value appears only when they are taken collectively. Grouped and collated, they serve as data from which principles of practice may be determined, so soon as they have accumulated sufficiently to render such deductions safe. To be fully adapted to this important end, every case should be reported with a fullness of detail, whenever it is possible, which shall leave no essential point unnoticed. The more complete the narration of its particulars, the more available is it for the advancement of accurate information. This consideration seems not to be kept sufficiently in view by those who publish cases; and a large proportion of the histories of ruptured uterus leave many important points unnoticed. Some furnish but one or two particulars, and a large number of cases must be collected to furnish anything like a proper number of observations upon any one point. This is, however, the only mode that we have of acquiring the general history and results of the accident we are treating of, and we trust that notwithstanding its imperfections, it may lead to important conclusions. In some instances, moreover, we are aware that it is impossible to obtain all the particulars essential to a complete history.

We are not ignorant of the difficulties attending an examination of the subject in the manner proposed. So many conditions come in to modify the results, as constitution, circumstances in life, &c., that scarce any two cases admit of a fair comparison in all respects; nevertheless, we have sought to note the prominent conditions that might influence the result, and as far as possible make allowance for them.

In pursuance of our design, of ascertaining what the experience of the profession at large has shown to be the most successful course in the management of rupture of the uterus, we have examined nearly all the treatises in our language upon midwifery, diseases of women, &c., and the large collection of foreign and domestic journals in the New York Hospital Library. The monographs of Douglas, Ingleby, and Duparque, the collections of Perfect and Baudelocque, and a volume published by Dr. Dewees, of observations on particular subjects, we have been unable to obtain access to; this is to be regretted, as they would have furnished additional cases. Our grateful acknowledgments are due to the liberality of Profs. W. Channing, of Boston, C. D. Meigs, of Philadelphia, and G. S. Bedford, of New York, who occupy distinguished positions as teachers and practitioners of midwifery, and who have kindly placed at our disposal histories of cases of rupture never before published, which their extensive experience has brought under their observation; and also to other gentlemen who have aided us by cases, and the use of their libraries.

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* See report of a discussion upon a case in which gastrotomy was performed, in *Lond. Lancet*, 1828–9, vol. i. p. 310.

In making the collection from Journals and authors, there has been constant necessity of guarding against recording the same case more than once, since it is not unusual to find the same quoted in several journals, in part in full, in part abbreviated; thus rendering it often difficult to be identified. Part are quoted at second hand, the originals not being accessible.

These cases were analyzed and tabulated under the heads of *Age, Health, and Condition—Character of Previous Labour—Nature of the Labour, and its Duration—Time from Rupture to Delivery—Mode of Delivery—Time occupied in Delivery, and whether difficult or not—Hernia of the Bowels, &c., accompanying it—Time from Rupture to Death or to Recovery—Post-mortem Appearances—Presumed Cause of Rupture.*

In this way, by casting the eye up and down the column, a complete view was presented of all that the whole series furnish under a given head, and an opportunity was afforded of comparing cases of the accident, occurring under great varieties of circumstance.

The abstracts thus obtained, have been compared with the histories that furnished them, twice, and in several instances oftener.

We have mentioned sources from which cases could have been obtained, to which we have not had access; there are probably others reported in the Continental journals of Europe, and perhaps in the journals of this country, which have not come under our notice; but from the frequency of quotations of cases of interest, probably not a large number have been omitted. The number collected is considerably larger than has, to our knowledge, been before brought together, being over three hundred. In consequence of the inconvenience of large tables, the analysis of each case has been copied in the form of a brief but continuous history. This abstract is published in order to present a series of cases that should exhibit the different phases which this accident may assume, as its phenomena are made to differ by conditions peculiar to each case. A much greater impression is made upon the mind by the perusal of several cases presented in succession, than by any general description, however extended it may be, or any mere statement of the proportion of instances in which given symptoms occur. Again, as the object of this inquiry is the truth, if our inferences are incorrect, the mistake may be readily pointed out. The cases being gathered from a great variety of sources, it is hardly to be supposed that the pains would be taken to recur to the original account, and many of them would be inaccessible to a large portion of our readers, if merely referred to.

We have arranged these cases, so as to bring together by themselves those occurring during gestation, and those met with during parturition. This distinction is made rather as a matter of convenience, than with reference to any essential differences in the accident as occurring under these two conditions. The rupture itself, during pregnancy, is more usually the first of the train of morbid symptoms, whereas in parturition, it usually succeeds labour pains of longer or shorter duration; and yet this is by no means universal. As exhibiting the general features of the accident when occurring during pregnancy, these cases have been grouped together; but inasmuch as in several instances rupture has occurred when labour has come on, or been artificially induced, before the full period of gestation, this distinction could not in all cases be regarded, and has not been rigidly adhered to. We have numbered each individual case, even though it was merely referred to in the original from which it was copied; several, for example, merely state that the woman died undelivered. This statement, in *so far as it goes*, is as valuable as a more elaborate account, and such are numbered for subsequent reference.

I.—*Cases of Recovery from Rupture occurring during Gestation.*

Case I.—At the sixth month of pregnancy violent pains occurred, without any previous unusual symptoms—sudden vomiting, faintness and sense of distension of the abdomen—gastrotomy two hours after the accident. Recovered in fourteen days.—*Lond. Med. Gaz.*, vol. i. p. 101, from *Repert. Méd. Chir. di Torino.*

Case II.—A healthy peasant, æt. 35—mother of four. About seven and a half month, suffered a severe blow on the abdomen, and felt a severe tearing pain. Fœtus could be felt in the abdomen—child had ceased to live—usual alarming symptoms of rupture absent. After several days part of a putrid fœtus escaped *per vaginam*, and part was extracted, as there were well marked symptoms of metritis. After a few days the rest escaped through an opening in the abdomen five inches in diameter. Menses returned in less than two months.—*Brit. and For. Med. Rev.*, vol. v. p. 581, from *Nægelé in Neue Zeitschrift für Geburtskunde.*

Case III.—Æt. 35—when, as she supposed, five months gone, seized with uterine contractions and abdominal tenderness. Six weeks before this, after violent pumping, felt a strange sensation in the abdomen, with faintness, and did not recover strength. The tenderness continued three or four days with sharp pain; soon the fœtus could be felt in the peritoneal cavity after an attack of hemorrhage. Ten days after this a fœtus of about seven months was expelled. The placenta had partly escaped through a rent in the upper and back part of the left side of the uterus. Another fœtus could still be felt in the abdomen. After a few months she remained feeble.—*Dr. Randall, Lond. Med. Gaz.*, vol. xxix. p. 45.

Case IV.—Had undergone Cæsarean section fourteen months before. At the seventh month labour-pains came on, and symptoms of rupture, and child passed into the abdominal cavity. Between the fifteenth and twentieth day after, the cicatrix of the abdomen gave way, and a putrified fœtus escaped. Recovered.—*Brit. and For. Med. Rev.*, 1844, p. 537, from *L'Expérience*, Nov. 1843.

Case V.—Æt. 28—deformed by rickets; had been delivered by Cæsarean section. At fourth month of her next pregnancy an ulcerated spot appeared on the abdomen near the cicatrix, which, during two months, increased—a slight cracking was heard, the abdominal parietes gave way, and the fœtus escaped into the world. The direction of the rent of the uterus was unascertained, that of the abdomen was transverse. Within three months the menses returned.—*Edin. Med. and Surg. Journ.*, 1845, vol. i. p. 515, from *Allegem. Repert.*, 1844. *Dr. Præl.*

Case VI.—Æt. 36—ninth pregnancy; fell from her bed in the second month, and afterward suffered great disorder in the uterine region. Severe constitutional symptoms appeared until the tenth month, when an abscess opened in the umbilical region. The opening was enlarged, and then the fœtus extracted piecemeal. Recovery rapid; rupture probably occurred at the second month.—*Dr. Salemi*, from *Journ. de Progrès*, vol. iii., in the *N. Am. Med. and Surg. Journ.*, vol. iii. p. 252.

Case VII.—Æt. 24—unmarried; full habit; seventh month. Violent griping pains existed for three days in the abdomen, and the membranes were found ruptured. Extremely violent and distressing pains came on; the os tender and undilated. After intolerable agony, the child was expelled with great force; putrid. The posterior and inferior segment of the uterus was torn off, attached by less than two inches in front. The intestines filled the brim of the pelvis. The intestines were returned, and the lip of the cervix replaced. Condition extremely dangerous for many days, discharging immense quantities of dark offensive fluids from the vagina. Seven months afterwards the vagina was blocked up by a very hard, insensible substance, and her health delicate.—*Mr. Wood, Lond. Med. Repos.*, vol. xv. p. 450.

Case VIII.—Nothing peculiar in the pregnancy. At seventh month seized with violent hemorrhage and slight pain, which continued and increased, and next day she was delivered by version, the shoulder presenting. On removing the placenta, the uterus was found ruptured at the posterior and inferior parts; and there was hernia of the intestines through the rent. Recovered in three weeks, and had another child.—*Mem. Med. Soc. Lond.*, in *Edin. Pract.*, vol. v. p. 584.

Case IX.—Æt. 20. In the ninth month, a sudden fainting fit and severe pain in the abdomen. Fœtus discharged through a fistulous opening in the abdomen. Recovered.—*Lond. and Edin. Month. Journ.*, 1842, from *Gaz. Méd.*, 1841.

Case X.—Rupture in fourth month; terminated by suppuration at the navel, and excrements discharged at the opening for some time.—*Burns' Midwif.*, p. 264, from *Dr. Drake*, in *Phil. Trans.*, vol. xiv. p. 121.

Case XI.—A washerwoman at Brent—rupture from a fall in seventh month —fœtus ultimately expelled at the navel.—*Ibid.*, from *Mém. Acad. Science*, 1709.

Case XII.—Sixth month; fall; rupture; immediate fainting; discharge from the vagina; child expelled *per anum.—Ibid.*, from *Mém. Acad. Sci.*, 1706, *Guillerm.*

II. Cases of Rupture before the Termination of the full period of Gestation, which did not Recover.

Case XIII.—Æt. 26—third pregnancy; nothing unusual in previous labours. Awakened in the morning by severe pain about the umbilicus, succeeded by vomiting, unaccompanied by pain. Died in eighteen hours after rupture.

Post-mortem.—Cavity of abdomen filled with blood; rupture at the fundus, through which the fœtus had escaped.—*Mr. Ilott, Lond. Med. Repos.*, vol. vii. p. 375.

Case XIV.—Æt. 43—twelfth pregnancy; corpulent, but active; of perfect make. Without any regular labour-pains, she suddenly had two very violent—the os hard, undilated and high up; peritonitis supervened. On thirteenth day a putrid fœtus was "extracted," after which she gained for a few days, but sunk on the twenty-fifth day from rupture.

Post-mortem.—The fœtus had escaped into the cavity of the peritoneum, and a sac had been formed around it.—*Lond. Med. Repos.*, vol. xxi. p. 327, from *Transacts. of Apothecaries.*

Case XV.—At the sixth month seized with strong pains, lasting three or four hours; motions of the fœtus ceased—death after several hours.

Post-mortem.—The fœtus swimming in blood, in the midst of the intestines—bifid uterus—rent in one division.—*Dict. des Sci. Méd.*, vol. xlix., from *Anatomie de Dionis.*

Case XVI.—At the fourth month symptoms of rupture occurred. After this she menstruated, and four months after the rupture died.

Post-mortem.—A rupture closed and cicatrized on the internal surface, but still open toward the abdomen; a fœtus was found in the abdomen.—*Phil. Med. Journ.*, vol. i. p. 80, from *Journ. de Med.*, 1780.

Case XVII.—At seventh month, after being jammed by a carriage against a wall, had at once violent pain and flooding. She languished for about five months, and died.

Post-mortem.—Evidences of great inflammation in the abdomen. Uterus natural, except a rent posteriorly which had not healed; fœtus in the peritoneal cavity, putrid.—*Ibid.* from *ibid.*

Case XVIII.—Æt. 20—married a few months; tolerable health; habitual dysmenorrhœa. After an excursion at time of quickening, seized with vomiting and syncope, and died in less than one hour.

Post-mortem.—A rent five inches long in the anterior part of the uterus from the cervix; the fœtus without the uterus surrounded by coagula; the uterus covered with dark-coloured spots, and easily torn, and both ovaries diseased. Rupture supposed to be owing to the movements of the fœtus.—*Mr. Else, Lond. Med. Gaz.*, vol. ii. p. 400.

Case XIX.—Æt. 25—second pregnancy at fifth month; had some pain and uneasiness in the abdomen and vomited once, collapse ensued, and in a few hours she died.

Post-mortem.—A large quantity of blood in the abdomen; a rent in the superior and posterior wall of the womb, one and a half inches long; the fœtus in the peritoneal cavity; the cervix healthy; the os closed; the body of the uterus "rather thinner and much softer than natural."—*Mr. Nunn, Lond. Med. Gaz.*, vol. xxi. p. 1030.

Case XX.—Æt. 32—mother of eight; near full time had a fright, causing her to turn quickly, when she was seized with sudden pain in the back, extending to the abdomen, with faintness and palpitation. Eight days after, the same symptoms were renewed, and she died three-fourths of an hour after the birth of a full-grown child.

Post-mortem.—A large amount of blood in the peritoneal cavity; the uterus not contracted; hydatids in the right ovary; two long and one short rent through the peritoneal coats of the uterus.—*Mr. White, Dub. Med. Journ.*, vol. v. p. 324.

Case XXI.—Æt. 24—at fifth month, second pregnancy, slight hemorrhage came on with pains; these recurring often, she was much reduced, and the back and feet could be felt through the abdominal walls. After a few weeks, violent pains came on; os scarce dilated; ergot given; sank exhausted.

Post-mortem.—Fœtus escaped through a longitudinal rent in the right side of the uterus, and near the cervix a second rent not through the peritoneum; the head and placenta remaining in the uterus. A great quantity of fluid, blood, coagula, &c., in the cavity. The structure of the womb rather softened; the fœtus apparently of six and a half months.—*Brit. and For. Med. Rev.*, vol. vi. p. 539, from *Gaz. Méd.*, 1837.

Case XXII.—Æt. 26—had one child, and three miscarriages. At two and a half months, while waltzing, after taking a dinner, and cold bath, she felt all at once a cracking in the abdomen, and became faint almost immediately. Most alarming symptoms rapidly succeeded; abdomen became swollen and painful, and perfect collapse ensued—no hemorrhage—neck of the uterus natural. It was believed to be rupture of the liver; two colleagues afterwards called it acute peritonitis—was leeched; died about thirty hours after rupture.

Post-mortem.—A great quantity of blood in the peritoneal cavity; at the fundus was a considerable rent of a circular form, two inches in diameter; the uterine tissue healthy, except about the rent, where it was evidently softened, and the torn surface rough and unequal—the ovum in the peritoneal cavity.—*MM. Moulin et Guibert, Arch. Gén.*, 1825, p. 382.

Case XXIII.—Æt. 25—robust—at commencement of the seventh month aborted, in consequence of a rupture of the womb and the posterior wall of the bladder, into which the fœtus escaped; some bones passed away, and at the end of two months, she died of gangrene.

Post-mortem.—The uterus and bladder united by false membranes.—*Arch. Gén.*, 1828, p. 109, from *Memor. d. Math. e Phis. d. Ac. d. Sc. d. Lisboa*, vol. ii. *Dr. G. de Lousa Ferras.*

Case XXIV.—Æt. 27—fourth pregnancy; after much fatigue, had pain in her left side, followed by nausea, lasting some days, and febrile symptoms. In a little over three months seized by an unsupportable pain in the side—a tumour felt in the belly—general agitation followed by syncope and collapse—death.

Post-mortem.—Much blood in the peritoneal cavity, and a fœtus of about the fourth month. Uterus somewhat flattened, and an irregular rent, still bleeding, nearer the longitudinal axis than the Fallopian tube and ovary, which could not be found. Death from hemorrhage.—*Phil. Med. and Phys. Journ.*, vol. vii. p. 419, from *Mem. dell' I. R. Institut. del Regn. Lombard.*

Case XXV.—Mother of several. At fifth month, after a long walk, felt a sudden and severe pain, "as if something had given way within her;" tearing sensation continued; supposed to be colic. Died after several hours.

Post-mortem.—At least four quarts of blood in the peritoneal cavity, and the fœtus and unbroken secundines. A transverse rent from one Fallopian tube to the other; the os impervious. "There was no extenuation at any point of the uterus, nor any appearance of disease."—*Dr. Harrison, Am. Journ. Med. Sc.*, vol. xv. p. 371.

Case XXVI.—Æt. 28—good health; first pregnancy: at sixth month, while reaching over a flour barrel, felt something give way, and had pain in the abdomen, where she rested against the barrel, which continued. Ten hours after this she had labour pains; the os partly dilated, and in four hours delivery took place; placenta separated by the hand with difficulty; child alive. Died ninety-eight hours after delivery.

Post-mortem.—Fœtid gas escaped from the abdomen; uterus torn at the left extremity of the fundus, above and very near the Fallopian tube; the rent of the peritoneum not over three-fourths of an inch, that of the uterine substance greater. The lining of the uterus elsewhere looked well. *Ibid.*, 1845, p. 177, from *Trans. Coll. Phys. of Philad.*, 1844. *Dr. Bond.*

Case XXVII.—Had flooded in a former pregnancy. Had been tolerably well, when at the seventh month, she had a violent pain in the right side, different from what she had before felt; the pains and hemorrhage had been inconsiderable. Died in four hours.

Post-mortem —The fœtus enclosed in its membranes escaped into the abdomen. —*Ramsbotham's Pract. Observs. Case* 84.

Case XXVIII.—First pregnancy; fourth month, suddenly seized with sickness and vomiting, supposed to be owing to having eaten mackerel. Five hours afterwards her pulse was scarcely felt; her countenance pallid and distressed; hands clammy and cold; pain in the belly; no external flooding, but exhibited symptoms "of loss of blood or of lead poisoning." Died six hours after rupture.

Post-mortem.—Uterus rent in the left side; ovum escaped entire; several pounds of coagula in the abdomen.—*Ib. Case* 85.

Case XXIX.—Æt. 36—tenth labour; at about the fifth month, os beginning to dilate; pains feeble; ergot given with no effect. After twelve hours, the pulse became weak, and she was faint. Immediately delivered by the crotchet of a putrid child. Sank on the seventh day.

Post-mortem.—Adhesions of intestines; ovaries soft, and mottled with black; peritoneum raised from the left side of the uterus by coagula, forming a large black tumour; the ragged remains of the anterior part of the cervix seen, which was softened and lacerated; the body of the uterus had lost its elasticity.—*Dr. Murphy, Dub. Journ. Med.*, vol. xvii. p. 218.

Case XXX.—Æt. 33—fifth pregnancy; at fourth month, had rupture from a fit of passion, and subsequent violent exertion. Died fourteen hours after supposed rupture, of hemorrhage.—*Lond. Lancet*, 1828–29, vol. i. p. 33, from *Gaz. de Santé*, 1824.

Case XXXI.—Mother of six. At beginning of the eighth month, seized with abdominal pains and bilious vomiting; in ten hours watery discharge, with coagula, from the vagina, and eight hours after, was delivered of twins, by natural efforts. Died about ten hours, from supposed rupture.

Post-mortem.—Some ecchymosis of anterior part, and several transverse rents more or less convex toward the fundus, through the peritoneal coat only, from one and a half to two inches long, as if made by a pen-knife, and one three inches long, and two inches broad.—*Mr. Partridge, in Med. Chir. Trans.*, vol. ix. p. 72, from *Churchill's Dis. Fem.*

Case XXXII.—Æt. 36—tenth pregnancy; fifth month; pains feeble from the first; os the size of a shilling, relaxed; ergot did not increase their strength. Pulse being quick and feeble, os relaxed; head perforated; fœtus putrid; inflammation set in; death on ninth day.

Post-mortem.—Great peritonitis; sero-purulent fluid in the abdomen; a rent in the cervix in front, confined to the muscular substance.—*Dr. Collins' Midwifery*, p. 138.

Case XXXIII.—General good health; former labours favourable: sixth child. At seven and a half months, while in the act of stooping, she exclaimed, "My dear, something has given way in my stomach; did you hear it break?" In one hour was in a state of collapse. Died immediately after the extraction of a dead fœtus.

Post-mortem.—A rent from fundus to cervix, posteriorly. No disease apparent in its texture; no cause for the rupture, unless a very slight attenuation of the portion lying in contact with several vertebræ.—*Merriman's Synopsis, Appendix,* p. 268.

Case XXXIV.—At fifth month, a retroverted womb filled the pelvic cavity; the fundus burst, and the fœtus escaped through the anus. Died. *Lond. Med. Repos.*, vol. xix. p. 207, from *Phil. Trans.*, vol. vii. p. 432.

Case XXXV.—*Æt.* 44—mother of twelve; labours always difficult, and premature delivery four times for contracted pelvis. At sixth month, membranes artificially ruptured; thirty hours after, labour came on; arm presented; after delay, delivered by turning; condition good. Twenty-four hours after, had a livid, anxious countenance, great pain, vomiting, and almost imperceptible pulse. Died thirty-six hours after delivery.

Post-mortem.—Extensive rent of anterior wall through the cervix, and body and bladder. Substance of the womb thick and pulpy, "evidently the seat of chronic inflammation."—*Mr. Favell, Prov. Med. Journ.*, 1845, p. 117.

Case XXXVI.—Rupture caused by forcible attempts to dilate the os uteri in an arm presentation at the seventh month. Longitudinal rent of the neck; result not stated.—*Dict. des Sc. Méd.*, vol. xlix., from *Baudelocque.*

Case XXXVII.—*Æt.* 17—between third and fourth month, suddenly seized with colicky pains, and soon died.

Post-mortem.—Abdominal cavity filled with blood, in which was the fœtus. Rent in the right side, from fundus near to the neck. The walls of the right side extremely thin, seeming to be little else than peritoneum, and very friable; the left natural.—*Buffalo Med. Journ.*, 1846, from *Am. Journ. Med. Sci.*, Jan. 1847.

Case XXXVIII.—Fell at the eighth month; first pregnancy; waters escaped; in thirty-six hours pains very strong; os dilated to the size of a shilling, and very rigid; breech presenting. During an examination, felt the cervix tear to the left; result not stated.—*Dr. Thompson*, in *Monthly Journ.*, 1847.

III.—Cases of Recovery from Rupture at the full term of Pregnancy.

Case XXXIX.—A healthy negress, æt. 18—first child; os undilated; head pressing violently on the perinæum. Uterus rent from the os, for six inches, toward the fundus; child expelled at the same time. Recovered, and had another child.—*Lond. Med. Gaz.*, vol. iii. p. 219.

Case XL.—Fœtus expelled through the anus; patient recovered in seven days.—*Lond. Med. Gaz.*, vol. i. p. 101, from *Repert. Med. Chir. di Torini.*

Case XLI.—*Æt.* 32—mother of two or three; pelvis contracted; had journeyed two hundred miles on foot; presentation natural; labour rapid; head low; birth soon expected. "A gush took place;" the head suddenly retreated, and pains ceased entirely. Complained of a constant "tearing" pain; laboured breathing; dark-coloured vomiting. The os was *undilated;* a rent in the right side of the body, running from a point at the right side of the cervix toward the fundus; the fœtus in the abdomen. The feet were seized, the head being assisted by the lever, after failure of application of forceps, about four hours after rupture. Over two hours hard labour in getting the head through the pelvis. Was well in three weeks.—*Mr. Macintyre, Lond. Med. Gaz.*, vol. vii. p. 9.

Case XLII.—*Æt.* 36—slight contraction of the superior strait; previous labours tedious, but safe. Strong labour; fully dilated os; head pressing on the perinæum. During a strong pain, a sudden scream and an exclamation that something had burst. Head receded. Great anxiety; irregular pulse; hiccup; dark-coloured vomiting. Between one and two hours after the rupture, delivery by the feet; very easily accomplished, the uterus affording no resistance; the fœtus lay in the abdomen. Recovered.—*Mr. Parkinson, Lond. Med. Gaz.*, vol. vii. p. 174.

Case XLIII.—*Æt.* 28—third labour; strong and healthy. Two months previous had a fall, and afterward complained of pain in right iliac region. Very severe labour; breech presentation; rupture after the breech and half the trunk had passed the vulva. Delivered, after some delay, by traction on the trunk, with some difficulty; placenta artificially removed, part left behind: a good deal of hemorrhage; hernia of the intestines. Left her bed for the first time in about two months.—*Mr. Currie, ibid.*, vol. xvii. p. 854.

Case XLIV.—Æt. 25—mother of two children; shoulder presentation; first seen after rupture; version was impracticable; thorax perforated; delivered with little difficulty. Extensive rent behind at the junction of the cervix. Discharged cured in twenty-three days.—*Dr. Collins*, in *Dub. Med. Trans.*, and in *Treatise.*

Case XLV.—Æt. 30—sixth child; had been in labour seven hours; pains brisk; rupture occurred unexpectedly, when child was about being expelled. Perforator and crotchet at once employed; the uterus strongly assisted the expulsion. Very extensive rent posteriorly, and hernia of the intestines. Discharged on thirty-second day, cured. Afterward had two children; with the first, premature labour induced.—*Ibid.*

Case XLVI.—A rent in the cervix, vagina, and perinæum, caused by dragging with forceps a horribly mutilated fœtus through a pelvis which was "ascertained to be too narrow to admit the transit of a living fœtus." She "escaped" with these lacerations.—*Reported by Dr. Campbell, Lond. Lancet*, 1828–29, vol. i. p. 34.

Case XLVII.—Æt. 36—mother of several; previous labours easy; pains moderate at first, and suddenly, after about five hours, bearing down almost entirely ceased. From one to two hours after rupture, the pulse was rapid and indistinct; countenance anxious; excruciating pain in the abdomen, and a slight oozing of blood, *per vaginam.* Prompt delivery resolved on; head at the brim of the pelvis; after a fruitless trial of long forceps for one half hour, they slipped. The perforator then used, and the fœtus found hydrocephalic; delivery at once finished; two pounds of coagula removed. A rent from the cervix, posteriorly up into the body of the womb, as far as the finger could reach; great prostration followed, but she recovered.—*Dr. Campbell, Edin. Med. and Surg. Journ.*, 1828, p. 328.

Case XLVIII.—A stout young woman; rupture in severe labour, which lasted thirty hours. Nearly four feet of intestines protruded through the rent, and sloughed off on the sixth day; fæces voided *per vaginam* for two years, when they took the natural channel. Eighteen months after this she conceived, and had a living child.—*Lancet*, 1828–29, vol. i. p. 35, from *Dr. McKeever's work.*

Case XLIX. (*a*).—Operated on twice successfully by gastrotomy, after rupture and escape of the fœtus. The second time the fœtus lived half an hour after its extraction.—*Ibid.*, from *Pathol. Chirurg.*, vol. ii.

Case L.—Æt. 33—feeble; fourth pregnancy; fell two weeks before labour. A transverse rupture of the fundus took place; fœtus escaped. Gastrotomy twelve hours after rupture; child dead. Liquor amnii and blood in the abdomen, the intestines inflamed. Cured in about one month.—*Quart. Journ.*, 1819–20, p. 226, from *M. Bernard, &c.*, in *Journ. Compl. de Dict. des Sc. Méd.*, 1819.

Case LI.—Æt. 30—very weak; partial prolapsus. First stage natural, contractions very powerful; os dilated to half an inch, and the head in the pelvic cavity, when suddenly, during a pain, the lower part of the uterus prolapsed. A large, fleshy, cylindrical mass, six inches long, and two and a half in diameter, occupied the vagina. The head being engaged in the inferior strait, the os dilated to an inch, the forceps were applied, and the cylinder began to burst; forceps withdrawn; child expelled. The rent did not seem to pass through the uterine walls; uterus was returned into the pelvis. Recovered.—*Lond. Lancet*, 1828–29, vol. i. p. 647, from *Siebold, Journ. für Geburtsk.*

Case LII.—Æt. 20—in ninth month; suddenly fainted, and had intense pain in the abdomen, with very strong movements of the fœtus, for twenty-four hours. Pains in the hypogastric region continued intense for four weeks. Fœtus discharged piecemeal through the abdomen and the vagina; recovered after several months.—*Lancet*, 1841–42, vol. i. p. 97, from *M. Richter*, in *Austrian Med. Weekly Writ.*

Case LIII.—Previous labours favourable but the last, all the children living.

Pains had ceased for some time; patient pallid, and looked very ill; no hemorrhage; head had somewhat receded; child could be felt in the abdomen: shock of the rupture less than usual; delivered by forceps without the least difficulty. A large rent in left side, with hernia of the bowels. Recovered.—*Dr. Murphy, Dub. Med. Journ.*, vol. xv. p. 489.

Case LIV.—Was suddenly alarmed by report of a pistol, and felt an extraordinary sensation. A few hours afterwards, voided blood in her urine. Twenty-eight hours after, profuse hemorrhage came on; the os being undilated. About thirty-two hours after rupture a horizontal rent in the posterior parietes of the uterus being ascertained, she was delivered by version. Recovered in a few weeks. Good constitution, and her mind was particularly tranquil. *Dr. Ingleby, Lond. Lancet*, 1839–40, vol. i. p. 635.

Case LV.—Æt. 24—infirmary patient; low stature; deformity of extremities; about 12 hours after the beginning of labour rupture took place, the os being the size of a crown-piece, after violent pains, which were succeeded by excruciating pain in the belly. Fœtus escaped into the abdomen. About 15 hours after rupture, delivery by turning and perforation. Rent along the whole course of the right side, including the cervix. Well in about two months.—*Mr. Powell, in Med. Chir. Trans.*, vol. xii. p. 528.

Case LVI—Æt. 29—delicate; mother of three; the last labour tedious; pelvis under average; pains strong and frequent; os dilated. Within twenty-four hours from the first of the labour, a most violent pain came on, succeeded at once by vomiting and exhaustion, and pains gradually ceased. About three hours after rupture, there being constant pain, extreme tenderness and prostration, the perforator was tried; the head retreated; version and perforation behind the ear; nates and trunk delivered not without considerable difficulty; hernia of the bowels. In seven weeks was about the house, and afterward menstruated regularly.—*Mr. Birch, Med. Chir. Trans.*, vol. xiii. p. 361.

Case LVII.—Æt. 40—stout, healthy, well made; mother of nine; the last labour protracted, with sloughing of the vagina and bladder; pains sharp, severe and quick; rupture about seven hours after labour begun. The os was adherent to the vagina under the pubis, and near the size of a crown-piece, and undilatable. Had a pain as if "a sword had been thrust through her;" profuse hemorrhage; pains ceased. Between one and two hours after rupture, the os was incised, and version performed, and perforation behind the ear. A rent of three inches across the posterior wall; the edges extremely thin; well in about one month.—*Dr. Smith, ibid.*, p. 373.

Case LVIII.—Æt. 32—mother of six; always had difficult labour; pelvis narrow. At full time pains strong; waters discharged; labour progressed slowly. After a while the head was easily reached; pains gone; limbs of the fœtus obscurely felt in the abdomen; fœtal heart inaudible; face flushed; eyes bright; great thirst; vomiting and frequent cough; increased heat of skin; clammy sweat; pulse 95, hard and full. After eight hours more, symptoms the same; the pulse 100; the fœtus easily felt through the abdominal walls; the head risen above the brim and beyond reach. Gastrotomy; child dead. In six weeks perfectly cured.—*Ranking's Abstract*, vol. ii. No. 1, from *La Nouv. Encyclo. Sci. Med.*, Jan. 1846, p. 70. *Dr. Kuhne de Thever.*

Case LIX.—Æt. 24—fœtus required extraction by version. After removal of the placenta a rupture of the womb discovered, with hernia of the bowels; bowels returned, and kept up by a sponge. Recovery.—*Ibid.*, from *Caspar's Wöchenschr.*, 1845.

Case LX.—Æt. 38; mother of six; suffered severe pain in the lower part of the abdomen for last six months. Labour favourable for twelve hours, then sudden prostration; head receded when forceps applied; delivered by crotchet; rent at anterior part of the cervix. Well in one month.—*Dr. Mitchell, Dub. Med. Journ.*, vol. xxii. 1843, p. 339.

Case LXI.—Gastrotomy three hours after rupture: menstruated in six months afterward.—*Brit. and For. Rev.*, 1844, from *Bulletin de l'Acad. Roy. de Méd.*, Sept. 1843.

Case LXII.—Æt. 44—mother of five; ninth month. Labour commenced; while standing up became faint, and vomited; had a sense of laceration, and a feeling as if there were two children in the abdomen; abdomen swelled; vomiting continued; breathing irregular; os undilated. Two hours after rupture, gastrotomy performed; child extracted alive. Recovered in forty days.—*Dr. Frank, Omodei Annali, Gennajo,* 1825, in *Anderson's Quart. Journ.*, vol. ii. p. 661.

Case LXIII.—Æt. 33—eleventh child; has projection of the sacrum; the antero-posterior diameter of the brim being from two and a half to three inches. Ergot was given as in former labours; pains became violent; rupture when in labour ten hours; hemorrhage; the pains at once ceased. Turning about nine hours after rupture; the head assisted by the crotchet; the child and placenta were in the abdomen; the fundus contracted, and the body flaccid. Rent on the right side extending over in front obliquely to the left, of about three inches. Recovered in four weeks.—*Dr. Hendrie, Am. Journ. Med. Sci.*, vol. vi. p. 35.

Case LXIV.—Fourth pregnancy; at full term; after thirty hours of frequent and strong pains, she experienced an extraordinary sensation, and delivery did not take place, although the pains continued. Two months after this the fœtus escaped through several ulcerations in the walls of the abdomen, and after some months was well.—*Dict. des Sci. Méd.*, vol. xlix. p. 240, from *Hist. de la Soc. Roy. de Méd. Journ.*, i. p. 308.

Case LXV.—Rupture; delivery by version; recovery, and subsequently became pregnant.—*Ibid.*, p. 245, from *Dr. Douglas.*

Case LXVI.—Rupture; delivery by version; rent felt by the hand employed. Recovered.—*Ibid.*, from *Gaz. de Méd.* for 1778.

Case LXVII.—Rupture caused by a violent blow over the uterus; the child lay in the left side of the abdomen, and was "extracted." Recovered, and had another child.—*Ibid.*, p. 245, from *Commentaries of Leipsic.*

Cases LXVIII., LXIX.—At the commencement of labour rupture took place; everything announced the escape of the fœtus into the peritoneal cavity. She had suffered a very severe pain, and felt something tear; the fœtus mounted high in the belly and moved actively. After a while the motions ceased, and soon a sensation of all pains; prominence of the belly very manifest. The womb was separated in great part from the vagina, and hernia of the bowels; no hemorrhage or other unfavourable symptom; child and placenta extracted with facility. The abdomen swelled on the second or third day; some vomiting; lochia scanty. Recovered. Two years afterward rupture occurred again; the head had not escaped from the pelvis; delivered by forceps. Recovered—both children dead.—*Ibid.*, from *Duncan's Annals,* 1798.

Case LXX.—A woman of Toulouse had rupture during the pains of a very tedious labour. Fœtus passed into the abdomen, and remained for twenty-five years. After her death the fœtus found invested in false membranes, and *the rent by which it had escaped was distinctly visible.*—*Ibid.*, p. 247, from *Bayle.*

Case LXXI (*a*).—Womb ruptured towards the end of labour, and the fœtus passed into the abdomen. The bones passed away *per anum.* Recovered.—*Ibid.*, from *Mem. Acad. Sci.*, 1720.

Case LXXII.—About twenty-two years after its supposed escape into the abdomen, the fœtus escaped *per anum.*—*Ibid.*, from *Percival.*

Case LXXIII.—Rupture and escape of the fœtus into the abdomen. Became pregnant a second time, extra uterine, at the end of seven years, during which time the fœtus was in the abdomen. At the end of twenty-one years she began to void the bones of both *per vaginam;* the discharge continued during eighteen years.—*Ibid*, from *Underwood.*

Cases LXXIV., LXXV., LXXVI., LXXVII.—Bartholeu cites two cases in which the fœtus escaped by ulcerations in the abdomen, and two by the intestines, of which three recovered.—*Ibid.*

Case LXXVIII.—Thérèse Allard had rupture, October, 1776, and four months after, the child was removed by a great incision, she being in great danger from the effects of putrefaction.—*Ibid.*

Case LXXIX.—Perceiving a faintness succeed a violent movement, when a long time in labour, the surgeon, on examining, could no longer feel the fœtus. Gastrotomy; mother and child saved.—*Ibid.*, p. 249, from *Mem. de la Soc. Roy. de Méd.*

Case LXXX.—Wife of a carman; child escaped into the peritoneal cavity; preparations made for gastrotomy, but it was resolved first to attempt delivery by the natural passages. The flaccidity of the lips of the rent, and the favourable position of the feet, permitted delivery, which was accomplished with as great facility as usual.—*Ibid.*, p. 253. *MM. Gardien, Desseaux, &c.*

Case LXXXI.—Third labour; at full term. On the escape of the waters the os was scarcely opened; pains came on; head presented. In a few hours everything promised speedy delivery, when she complained of a singularly acute pain of but short continuance, in the superior and lateral part of the abdomen, after which the fœtus and placenta escaped. Gastrotomy at once practised, and occupied only four minutes; the child was dead; considerable blood in the *bas ventre;* recovery favourable; cure complete on the thirtieth day.—*Heister's Surg.*, tom. v., from *M. Thibault*, in *Journ. de Méd.*, 1768.

Cases LXXXII., LXXXIII.—Wife of a vine-dresser; rupture and gastrotomy at the end of eighteen hours; child dead; a gangrenous abscess formed in the hypogastric region; but she was at work in the field in six weeks. At the end of nine years again pregnant, and had rupture of the womb, the fœtus escaping entirely into the abdomen. Gastrotomy again, only waiting for the administration of the sacrament, two hours or more. Infant gave signs of life for half an hour after the operation. The woman subsequently had a child naturally.—*Dict. des Sc. Méd*, xlix. p. 255, from *M. Lambron, Observ. Communiquée à l'Acad. de Chirurg.*

Case LXXXIV.—Mr. Dumay resorted to gastrotomy in a case of rupture, and on the thirtieth day the wound was the size of a two sous piece.—*Ibid.*, from *Baudelocque, Recherches sur l'Operation Césarienne*, p. 38.

Case LXXXV.—A poor woman fell from a cart, in consequence of which the uterus was ruptured, and the child passed into the peritoneal cavity; bones of the pelvis so *mashed* as not to allow of delivery. Gastrotomy was performed. Recovered. *Dewees' Essay*, in *Phil. Med. and Phys. Journ.*, vol. i. p. 77, from *MS. Lectures of J. Hamilton.*

Case LXXXVI.—Had several children; full time; labour slow at first, but pains became more violent, and during one, felt something crack within her. Pains ceased; became faint; pulse intermittent. Apparently quite torn; she was delivered; the child small, *very healthy and lively.* One side of the uterus burst so wide as to admit the hand.—*Ibid.*, from *Burton's Syst. Midwif.*, p. 110.

Case LXXXVII.—Æt. 21—at full term had very violent pains continuing three weeks. About six months after, she discharged from a small rent at the navel, near four gallons of water, with some "fleshy strings and small bones." The opening was dilated, and the bones of two fœtuses extracted; menstruated two months after, and was pregnant five months after, and six times since.—*Ib.*, p. 82, from *Med. Comment.*, *Amer. edit.*, vol. i. p. 103. *Dr. Bell.*

Case LXXXVIII.—Exostosis of the pelvis; rupture; gastrotomy; mother and child saved.—*M. Castelli, Archives Gén.*, vol. lxiii., 1845, from *Repert. Acad. Roy. de Méd.*

Case LXXXIX.—Æt. 38—mother of three; previous labours severe. Deformed pelvis from too great inclination of the superior strait. Pains came on upon the 27th, waters broke on the 28th, and os dilated on the 29th; no signs of danger; sudden indefinable sensation in the abdomen, with change of its form, and the fœtal limbs could be felt. Expulsive pains ceased; collapse; some hemorrhage. Turning easily done, the head being assisted by the forceps; rent felt by the hand during version. Recovered in a month.—*Gaz. Méd.*, 1845, p. 311, *M. Colson.*

Case XC.—Æt. 37—mother of seven; two labours tedious; the rest natural; sacrum prominent. Five months before fell back in a chair, but was well after it. Pains very frequent and strong, and after twelve hours, membranes were artificially ruptured. In a very strong pain she had a peculiar feeling in the abdomen, and suddenly cried out that something had burst within her; collapse ensued. Turning immediately, the head being assisted by the lever. Rent transverse; an internal abscess burst *per anum*, and she recovered. Fifteen months after, again confined.—*Edin. Med. and Surg. Journ., July,* 1833, p. 72. *John Dunn.*

Case XCI.—Æt. 30—mother of six still-born; each labour long and painful; children born alive; diameter of brim scarce three inches. Great œdema of anterior lip of uterus; belly prominent; for eighteen hours the pains were of little strength; then excessive cramps came on, and vomiting, the head being at the brim. Labour lasted thirty-five hours. Fearing rupture, the head was perforated; delivery occupied two hours. A rent of two to three inches in the posterior part of the neck, apparently not involving the peritoneum. Recovered.—*Mr. Robertson, Ibid.*, for 1834, p. 51.

Case XCII. — Æt. 35 — eighth pregnancy; previous labours hard; pelvis "under the standard dimensions." After six hours' labour, the pains having become very severe, rupture took place; there were hemorrhage, extreme tenderness, sense of sinking, and hurried breathing; fœtus and placenta escaped into the abdomen through a rent in the left side, somewhat behind. Delivered by version. Recovered, and became pregnant.—*Ibid*, from *Mr. Stephens.*

Case XCIII.—Æt. 28—brim not over three inches in its short diameter; had been in labour forty hours; pains incessant; great suffering; perforation; the base of the skull with some difficulty drawn into the pelvis; cervix ruptured posteriorly for two inches, both longitudinally and transverse. Was well in eight weeks.—*Ibid.*, p. 55.

Case XCIV.—Æt. 37—small; antero-posterior diameter of brim two and three-fourths inches; first delivery was by perforation. After twelve hours of continued strong pains, the os dilating well, the pains ceased suddenly; had a sense of stabbing in the belly, which lost its form; the head retreated; no alarming symptoms at the time. Next day, the skin was cold; pulse feeble, 85 to 90; intestines felt at the brim; placenta and membranes and fœtus in the peritoneal cavity. Twenty-three hours after rupture, gastrotomy performed; occupied not over five minutes; expressed herself much relieved at once. A longitudinal rent of the left side. In one month menstruation was established.—*Arch. Gén.*, vol. xxxviii. p. 506, from *Allgem. Med. Zeitung*, 1833. *Dr. Molitor.*

Case XCV.—Æt. 35—healthy; eleventh child. After several hours, the os dilated; head pressing on the perinæum; had acute pains; became restless and anxious; cold sweats; nausea; and violent liquid purging. After some time, the head found receded; rupture not discovered till it was considered too late for delivery. During a few weeks the fœtus passed partly by the vagina, and partly removed by an incision in the abdomen. In about ten weeks perfectly well.—*Lond. Med. Repos.*, vol. viii. p. 110. *Mr. Brock.*

Case XCVI.—Æt. 22—second child; full time; previous labours of great suffering, and instrumental. Pains powerful and frequent; no dilatation; had been so for several hours. Suddenly the fœtus was forced through the anus, and fell on the floor. Rent through the posterior part of the uterus into the rectum; the os a firm cartilaginous ring. Recovered.—*Ibid.*, vol. xix. p. 206. *Mr. Gaitskill.*

Case XCVII.—Æt. 33—pelvis roomy; after considerable bodily exertion, membranes suddenly burst, and two days after labour came on. After twelve hours more, the head low in the pelvis, suddenly cried out something had burst, followed at once by hemorrhage and vomiting and excessive pain, with cessation of uterine contractions; the head receded. Forceps applied after seven hours, and slipped, and the fœtus escaped into the abdomen; version was effected with some delay; rallied immediately after delivery: rent transverse above the pubis. Recovered. —*Hamilton's Select Cases, Edin.*, 1795, p. 138. (Since Hamilton, in his *Pract. Observations*, in 1836, remarks that he had met with but one instance of recovery, this case must be the one quoted by Dewees, in the essay *sup. cit.* from Hamilton's MS. lectures, where he says it was "a case in which almost every circumstance was unfavourable," for, on bringing the child through the lacerated parts, he felt it tear more; she had children afterwards.)

Case XCVIII.—Æt. 36—primipara; pains very strong, and increasing for the first seventeen hours; os partially dilated; head in the pelvis, but not progressing; seized with excruciating pain, gave a loud shriek, and fell asleep. Awakened after a quarter of an hour, with brown vomiting, and was plainly sinking. At once delivered by forceps in a short time; child saved; well in three weeks.—*Mr. Haden, Trans. Soc. Lond., for Med. and Chir. Improvement*, vol. i. p. 184.

Case XCIX.—Æt. 39—strong and healthy, but lately weakened by peripneumonia; pelvis narrow; fifth labour; after the escape of the waters, was very restless and irritable, with great anxiety for a few hours. During the last pain felt something slip out of its place. Vomiting ensued and quick pulse; duration of labour presumed less than six hours. In apparently less than three hours, the perforator was used; it slipped, and version resorted to, followed by perforation. Got well.—*Lond. Med. and Phys. Journ.*, vol. xix.

Case C.—Mother of seven; when one hour in labour she gave a piercing cry; pain in the right side; face pallid and sunken; pulse depressed; head retreated; turning easy; hernia of the bowels. Cured in fifteen days.—*Dubois*, from *Chailly*, *Amer. Trans.*, p. 267.

Case CI.—Arm presentation; rupture; turning accomplished with great difficulty; hernia of the bowels; extensive rupture of the cervix. Recovered.—*Burn's Midwifery*, p. 480, from *Trans. Phys. Dub.*, vol. ii. p. 15.

Case CII.—Contracted pelvis; rupture; child escaped; uterus contracted; turning; a large transverse rent opposite the bladder. Recovered in a few weeks.—*Castle's Blundell*, p. 704.

Case CIII.—Robust; became pregnant after a fracture of the pelvis, producing contraction; rupture; gastrotomy; only the muscular substance was torn: the peritoneum divided by the scalpel. About work in two or three weeks.—*Mr. Barlow*, in *ibid.*, p. 705.

Case CIV.—Primipara; delivered by craniotomy after a very lingering labour; placenta adherent, and on introducing the hand seven and a half hours after, it passed through a rent in the back of the vagina or cervix into the abdomen; placenta separated; a very fœtid discharge; eventually recovered.—*Ramsbotham's Process of Parturition, note* to p. 421.

Case CV.—Eight days after rupture, the fœtus was sought for in the abdomen, through a rent at a point between the neck and the body of the uterus; it was small, flabby, extensible, but complete; gas escaped with noise and at intervals; moderate fever lasted some days, but the peritonitis diminished; a mucous discharge, and pains about the kidneys continued. Entered the hospital July 6th, the tenth day of labour, and left cured on the 15th.—*Mad. Lachapelle.* See *Man. des Accouch. etc., par J. Jacquemier*, tom. ii. p. 299.

Case CVI.—Æt. 36—in labour thirty-nine hours, with a very rigid os; pains intensely violent; felt something snap, and a noise heard by an attendant; pains suddenly ceased; collapse; delivered by the vectis. Among the coagula, the portion of the uterus containing the os, and an irregular part of the cervix surrounding it, were found. For three weeks a continuous cavity between the uterus and vagina. Recovered.—*Med. Chir. Trans.*, vol. ii. *Mr. Scott.*

Case CVII.—Sixth child; labour of seven hours; ten hours after delivery, two-thirds of the labia of the os protruded from the vulva: this was separated by torsion, and the whole filled the cervix. Recovered.—*Dr. Kennedy, Dub. Journ.*, vol. xvi. p. 154.

Case CVIII.—Primipara; labour tedious from congested and undilated os; pelvis rather under-sized; posterior lip separated, and was removed. Recovery tedious. —*Ibid.*

Case CIX.—Os undilatable, after many hours of labour. after a violent pain, the circle of the cervix was torn off, and the head expelled.—*Mr. Carmichael, Ibid.*, p. 54.

Case CX.—Antero-posterior diameter of the pelvis somewhat contracted. In two labours delivered by forceps; in the third she felt something give way, and version was resorted to: eventually the trunk was removed, and gastrotomy practised, in order to remove the child's head. A slight rent was found in the uterus; this was enlarged, and the head delivered. Recovered. For further particulars see case CCLI.—*Am. Journ. Med. Sci.*, Oct. 1843, p. 365, reported by *Dr. Bowman.*

Case CXI.—After two or three days of pain, the os uteri considerably dilated, and labour progressing, when two or three gallons of water escaped. After this she suffered extremely; belly swollen and painful; pulse quick and feeble, &c. After several hours ergot was given, with no effect. After some hours these symptoms were relieved, and the head could be felt in the abdomen. On the twelfth day offensive discharges from the vagina; fourteen months afterward was feeble, in bad health, and discharged bones, &c., *per vaginam.* At the end of about seventeen months a fistulous opening found in the abdomen; at the end of twenty-one months the bones of the cranium, &c., removed by an incision. At the end of two years was quite well.—*Dr. Toy, ibid.*, vol. vi. p. 33.

Case CXII.—Æt. 37—good health and constitution; mother of seven; waters escaped for forty-eight hours; pains short and violent; after an attempt to return the hand, which descended by the head, the womb ruptured; extreme prostration; head receded. Forceps tried and failed; then version; feet and breech in the belly; rent transverse to the right, four or five inches long. Recovered; and in five weeks was about the house.—*Dr. Guernsey, N. Y. Annalist*, Oct. 1846, p. 37.

Case CXIII.—Æt. about 30—mother of several; dangerous hemorrhage; os the size of a crown-piece, and very thin. "When stretching the os, which felt thin and rigid like a piece of parchment, the woman shrunk from the side of the bed, which obliged me to dilate with more force than I intended," when the os was felt to tear at the side, and allow the hand to pass; delivered; child lived. Recovered.—*Smellie's Works*, vol. iii. p. 139.

Case CXIV.—Distorted pelvis; second child; after the birth of the child, the vagina found torn from the right side of the os for two or three fingers' breadth, and the os a little torn. Recovered; delivered again, and a large gap or chasm then detected at the side of the os.—*Ibid.*, p. 383.

Case CXV.—After pains, which continued during three days, two loud cracks were heard, as if the rafters had broken, and the belly was rent from near the navel obliquely downward; child and placenta expelled through it; the intestines seen. Recovered.—*A. Monroe, Sen.*, in *New Edin. Essays*, vol. ii. p. 338, in *Dub. Med. Journ.*, vol. xxvi. p. 492.

Case CXVI.—Æt. 32—second child; never had any uterine disease: when in labour twenty-two hours, during a strong pain, felt something suddenly give way within her, seeming as if her bowels had been torn. A calm succeeded; two hours after, pulse small and thready; respiration slow and regular; acute pain in the belly, and a sense of a rolling, crushing weight there; limbs of the fœtus easily felt, and grasped through the parietes; strength failing, she was, after a little over two hours, delivered by forceps; child lived a few minutes. A rent in the fundus admitted the hand; hernia of the bowels; a knuckle of the gut was reduced the second day. Recovered.—*Dr. Robiquet*, in *Annales de la Soc. de Méd. de Gand.*, quoted from *Journ. de Méd. et Chirurg.*, July 1846, in *Am. Journ. Med. Sci.*, April, 1847.

Case CXVII.—Four years after rupture a gangrenous abscess formed, which was opened, and a part of the fœtus withdrawn, part having been already evacuated by the bowels.—*Dict. des Sci. Méd.*, vol. xlix., *by Cornac of Vienna.*

IV. Cases of Rupture at Full Term proving fatal.

Case CXVIII.—Contracted pelvis; in three labours perforation required. At about the seventh and a half month, fifth pregnancy; delivery brought on by piercing the membranes; rupture; head escaped into the abdomen; turning and perforation behind the ear. Died.—*Lond. Med. Gaz.*, vol. iii. p. 32. *Mr. Doubleday.*

Case. CXIX.—Æt. 43—eleventh child; contracted pelvis; previous labours severe and dangerous. Pains unusually severe; in a terrible pain the uterus burst, and a sound was heard by the attendants. Died in two hours.

Post-mortem.—Rent from cervix to fundus.—*Ibid.*, vol. v. p. 522. *Mr. Spackman.*

Case CXX.—Æt. 28—fifth child; membranes ruptured; head presented; faint pain and cramp in the side. Died in less than one hour from the rupture, undelivered.

Post-mortem.—Two quarts of bloody serum in the pelvis; head firmly impacted; parietes of the uterus remarkably thin at the rupture.—*Ibid.*, vol. viii. p. 304. *Dr. Smith.*

Case CXXI.—Æt. 40—eleventh child; for two weeks had severe pain in the lower part of the abdomen, with tendency to sickness; pains tolerably strong; duration eight or nine hours; no physician called for an hour and a half after rupture. Died undelivered in less than two hours.

Post-mortem.—Two rents; that portion of the uterus thinner than the rest, and evidently in a morbid condition; patches of lymph between the peritoneum and muscular fibres; fœtus within the uterus.—*Ibid.*, vol. xxii. p. 375. *Mr. Reid.*

Case CXXII.—Æt. 32—stout and healthy, and had five children. Had a favourable labour; the head nearly resting on the perinæum. On the discharge of the waters the pains ceased, and delivery was soon required; but no positive signs of rupture, or premonitory symptoms; forceps tried and failed; delivered in a few minutes by perforation, somewhat less than two hours after rupture. Died about two hours after rupture.

Post-mortem.—Two pounds of dark coagula in the abdomen; a longitudinal rent of four inches in the posterior part; coats of the uterus healthy, but destitute of blood.—*Ibid.*, vol. xxvi. p. 347. *Dr. John Jackson.*

Case CXXIII.—Æt. 21—healthy looking; former labours easy; pelvis sufficiently roomy; os dilated; pains lively, not violent; face to the pubis; waters escaped; head gradually advancing, and a prospect of a safe delivery; a sudden scream, and complaint of a peculiar excruciating pain; pains soon ceased; rupture evident; duration of labour about ten hours; perforation at once; delivered with little difficulty. Died eleven days from rupture.

Post-mortem.—Rent two and a half inches in the anterior part; inner surface of the womb mottled by greenish patches; uterus thinned at the place of the rent. Presumed cause of rupture, partial atrophy of the uterus.—*Dub. Med. Journ.*, vol. vii. p. 209. *Dr. Murphy.*

Case CXXIV.—Æt. 36—delicate; eleventh labour; seven premature, three alive; pelvis undersized, but not irregular; no unusual sharpness of the brim. Labour at first natural; three hours and more before rupture, the pains became weak; an hour and a half after the escape of the waters, a sudden lancinating pain, "as if a sword had passed through her groin." Rupture soon evident; head between the ischia; duration of labour about nine hours. Forceps tried and failed; perforator; child slowly removed; the uterus assisting the breech and lower extremities. Died on the eighth day.

Post-mortem.—A transverse rent of three inches in the anterior part of the womb; "no morbid lesion to explain the accident." Death caused by the hemorrhage. —*Ibid.*, p. 211.

Case CXXV.—Had one living and one still-born child; sacrum prominent; antero-posterior diameter of the brim not over three and a half inches. Strong, steady pains after the escape of the waters; head fixed at the brim, and the uterus felt hard as if spasmodically contracted; felt something give way, and pains became mere spasms; no discharge from the vagina. Delivered by crotchet, apparently soon, "with much difficulty," "the uterus affording no assistance." Did not recover from the shock. Died thirty hours after delivery. Duration of labour fourteen hours.

Post-mortem.—A circular opening in the cervix opposite the sacral promontory; and a patch reaching into the body of the womb, much thinned.—*Ibid.*, p. 213.

Case CXXVI.—Æt. 36—tenth labour; five still-born; ischia closer than natural; antero-posterior of the brim four and a half inches. The os soft—head almost arrested between the ischia during four hours before symptoms of exhaustion required delivery—duration of the labour not over twelve hours. Crotchet—child large—the uterus assisting the body and legs—uterus well contracted. Sank and died in apparently less than thirty hours.

Post-mortem.—Some shreds of lymph partly adherent, and part swimming in bloody serum about the cervix. A circular opening posteriorly, near the size of a half crown; cervix thin, not softened; body of the uterus had a soft doughy feel; no unusual prominence of the sacrum.—*Ibid.*, p. 214.

Case CXXVII.—Æt. 30—fifth child; face presentation; natural labour and delivery; rupture unsuspected. Died of peritonitis on the sixth day.

Post-mortem.—Blood and serum in the abdomen; peritoneum of the uterus thickened; rent of three inches in the left side, exposing a cavity in the fibrous structure of the uterus communicating with the lining membrane, by three openings—coagula around and within it.—*Ibid.*, p. 219.

Case CXXVIII.—Æt. 26—sixth child; the first delivered by the crotchet; the third, forced delivery; the second, fourth and fifth, natural. Antero-posterior diameter of the brim three and a half inches. Labour strong; os nearly fully dilated; head resting on the pubis; without any sudden exclamation or complaint, the pains went off; pulse became weak; countenance anxious; respiration laboured; dark-coloured vomiting. Perforation at once; the uterus assisting the body and limbs. Died of peritonitis on the third day.

Post-mortem.—Intestines, and peritoneum of the uterus, highly vascular. Rent in the peritoneum of two and a half inches in the anterior part of the cervix, where was softening, and a cavity in the substance opening through the rent into the abdomen; at the rent the peritoneum raised, and lying loose between the womb and bladder; fundus soft and doughy; fibrous structure easily peeled off.—*Ibid.*, p. 220.

Case CXXIX.—Æt. 30—first child. Delivery required by her situation when admitted. Died twenty-four hours after delivery.

Post-mortem.—Uterus rent at the anterior part of the cervix close to the vagina, in a portion which was of a dusky green, and softened—of which there was a broad patch embracing the entire thickness of the walls. The peritoneum was raised in one place by coagula beneath.—*Ibid.*, p. 221.

Case CXXX.—When in labour some hours, a powerful dose of ergot was given by a midwife without regard to the os, which was extremely rigid. Uterine action was most violent; after some time prostration ensued, and she very soon expired.

Post-mortem.—A large transverse rent posteriorly, and at the neck; the fœtus and a few ounces of blood in the abdomen.—*Lond. Med. Gaz.*, vol. xxvii. p. 372. *Mr. Coward.*

Case CXXXI.—Æt. 40—not very strong; tenth pregnancy; repeated losses of blood from placenta prævia. When the child was half-delivered by version, the uterus ruptured. Duration of labour about twenty-four hours; died soon. No post-mortem, but the uterus was as thin as paper.—*Lond. Lancet*, 1827–8, vol. ii. p. 110.

Case CXXXII.—Delivered by natural efforts; child born alive. Patient died from flooding.

Post-mortem.—A longitudinal rent in the side. *Dr. Blundell.*—*Lond. Lancet*, 1828–9, vol. ii. p. 384.

Cases CXXXIII., CXXXIV., CXXXV.—One died thirty-six hours after rupture, with a laceration in the posterior part of a hand's breadth. The second died at the end of thirty-eight hours. The third died in less than twelve hours; the child escaped into the belly; rent in front.—*Ibid.*

Case CXXXVI.—Pelvis greatly distorted; Doctor found she had bled profusely; was restless; had weak intermitting pulse; no vomiting; uterus extremely relaxed; the child in the abdomen. Turning; considerable difficulty in extricating the shoulders and head. Survived delivery but a few minutes.—*Lond. Lancet*, 1831–2, vol. i. p. 830. *Mr. Wisbey.*

Case CXXXVII.—Exostosis of one of the pelvic bones; hydrocephalic fœtus; labour had been suffered to continue for many hours. Rupture; died without any attempt to extract the fœtus.

Post-mortem.—Several rents; an extensive one in the body, through which the whole fœtus, except the head, had escaped.—*Dr. Campbell. Lond. Lancet*, 1828–9, vol. i. p. 35.

Case CXXXVIII.—Third labour; narrow pelvis. Duration of labour thirty-three hours; lived nine hours after rupture; died undelivered.

Post-mortem.—Very extensive rent in the anterior part of the body of the womb, through which almost the whole of a pretty large male fœtus had passed; the fundus well contracted; head impacted firmly.—*Ibid.*, p. 35.

Case CXXXIX —Fifth pregnancy; full time; had dull and continued pain in the abdomen; waters escaped, and uterine action was very much abated. At the end of three hours, gave three ordinary doses of ergot; action increased in a small degree for one and a half hours, when the vectis was used, but failed; fœtus then considered hydrocephalic; head suddenly receded, and pains at once ceased; sinking came on; rupture had taken place, and the fœtus had escaped into the belly, and could be felt there. Apparently soon, the uterus was found permanently contracted, admitting but two fingers; patient exhausted, and but few hopes could be entertained of recovery. Gastrotomy—this occupied thirty seconds, without the loss of a teaspoonful of blood; patient expressed herself greatly relieved, and passed a good night. Died eight hours after delivery.

Post-mortem.—Uterus healthy, except near the laceration in the posterior wall, where it was completely altered and softened in its texture, owing to chronic inflammation; fœtal head of monstrous size.—*Mr. Lord*, in *Lond. Lancet*, 1828–9, vol. p. 310.

Case CXL.—After violent pain in the bowels, uterine pains suddenly ceased, and the fœtus was felt beneath the integuments. Rupture from natural effort of the womb; pulse quickened; less anxiety of face than was to be expected. Turning, over six hours afterwards; fœtus entirely in the abdomen. Died about eighteen hours after rupture.

Post-mortem.—Intestines glued with lymph, and a layer formed for isolating the fœtus.—*Mr. Spilsbury. Lond. Lancet*, 1834–5, vol. i. p. 125.

Case CXLI.—Strong and healthy; æt. 32; tenth pregnancy; sacrum very prominent. After being five hours in regular active labour, pains suddenly ceased for twelve hours. Midwife gave ergot, and in a few hours pains returned, and the woman suddenly exclaimed that something had burst; hernia of the bowels; fœtus "too high up" to be delivered by the feet, and was brought down by the blunt hook; died in a few hours after delivery.

Post-mortem.—Uterus healthy; muscular fibre very firm; rent posterior from the fundus to the os.—*Lond. Lancet*, 1836–7, vol. i. p. 824. *Mr. Hooper.*

Case CXLII —Æt. 30—robust; pelvis well formed; had one living child. Had been in labour four days without symptoms of rupture or peritonitis. After blood-letting, "we endeavoured to apply the forceps the whole afternoon, but without effect." Died undelivered about five days from the commencement of labor.—*Mr. Blythman. Lond. Lancet*, 1841–2, vol. i. p. 29.

Case CXLIII.—Æt. 36—robust and healthy; labours always severe and lingering, but not instrumental. After being several hours in favourable labour, pains increasing, and the head descending, during an ordinary pain, the countenance changed; felt a sense of suffocation; pulse quick and tremulous. After one hour the head had not receded, but the fœtus was felt through the parietes. On attempting to perforate, the head receded; version, over an hour after rupture; delivery "soon accomplished." Rent in anterior part. Died thirty-four hours after delivery.—*Mr. Tovey. Ibid.*, p. 321.

Case CXLIV.—Mother of eleven; pains lasted for sixteen hours, when she was delivered by a midwife, by turning of a living child. During the operation she gave a loud scream, and fatal syncope came on at once after delivery. Died in two hours.

Post-mortem.—Rent in right side through muscular coat only.—*Mr. Hancorn. Ibid.*, p. 796.

Case CXLV.—Died undelivered, after a most protracted labour, the head floating at the brim like a cork in water.—*Dr. Ingleby. Lond. Lancet*, 1839–40, vol. i. p. 634.

Case CXLVI.—Somewhat contracted brim. Died undelivered.—*Ibid.*

Case CXLVII.—Transverse presentation; child escaped into the abdomen; delivery by version. Died.—*Ibid.*

Cases CXLVIII., CXLIX.—Transverse presentations. Died.—*Ibid.*

Case CL.—Slightly contracted brim; impaction; crotchet within an hour; sloughing of the passages; died after some weeks.—*Ibid.*

Case. CLI.—Æt. 36—sixth labour; once delivered by perforation; great projection of the sacrum; pubis narrow; crista sharp; antero-posterior diameter of the brim, three and one-sixteenth inch; the lateral diameter, three and one-half inch. Sixty hours after the escape of the waters, the pains having been apparently of ordinary severity; the head not descending; craniotomy was talked of; an hour and a half after this, the pains entirely ceased; head retreated beyond reach, and the child was plainly felt in the abdomen. The uterus was well contracted; the rent was in the vagina; vomiting; pulse 130; severe suffering and tenderness; she felt the child move in the bowels at the supposed time of rupture. Four hours after rupture, exhaustion, death-like; "presently" she rallied, and gastrotomy was performed; not over half an ounce of blood lost from the integuments; but a quart or more escaped from the abdomen; was better than before the operation. Died after two days from exhaustion.

Post-mortem.—Spinal curvature. No peritonitis, except lymph in the line of incision; uterus perfectly healthy; vagina extensively torn anteriorly, and separated from the uterus by a rent of four and a half inches. Child very large.—*Ibid.* p. 637.

Case CLII.—Extensive rent in the vagina; the hand easily passed into the peritoneal cavity; was supposed nearly recovered, when on the twenty-sixth day from delivery, she suddenly died from hemorrhage.—*Dr. Collins' Treatise,* note to p. 127.

Case CLIII.—Æt. 25—first labour; waters escaped in twelve hours; pains brisk, but not violent. In nineteen hours the pains ceased; face pale and ghastly; limbs cold; constant yellow-vomiting; head very low. Perforation at once; much exertion required to deliver the head and even the shoulders. A most extensive rent posteriorly at the junction of the uterus and vagina; hernia of the intestines. Died after twenty-five days.

Post-mortem.—Rent nearly healed, but two openings into a psoas abscess on each side, of which she probably died.—*Ibid.*, p. 129.

Case CLIV.—Æt. 36—first pregnancy. Died on the fourteenth day.

Post-mortem.—Extensive peritonitis; rent at the posterior part of the vagina, at the junction of the uterus.—*Ibid.*, p. 133.

Case CLV.—Æt. 21—third child; head large and firmly ossified. Duration of labour, nine hours; pains not of unusual violence, suddenly ceased; pulse became rapid and feeble; countenance expressive of greatest distress; belly could not bear a touch; frequent vomiting; head low down; face to the pubis; delivery at once by crotchet; extensive rent of the vagina anteriorly. Died on the eleventh day.

Post-mortem.—Extensive adhesions; parts near the uterus and the inner surface of the bladder, of a dirty green (from blood). A transverse fissure in the cervix anteriorly of two and a half to three inches, filled up by partially organized lymph; no gangrene; a large quantity of clots, with some fluid blood in abdomen.—*Ibid.* p. 133.

Case CLVI.—Æt. 36—eleventh child; seven premature; after nine hours natural labour, had a sudden acute pain in the left iliac region, when the pain ceased; pulse began to sink; belly very tender; frequent vomiting; distressed countenance; head on the perinæum. Forceps at once; head could not be moved; perforation, and considerable force required; the uterus acted a little at the last. A most extensive rent at the junction of the vagina and womb; placenta among the bowels; a large quantity of fluid and clotted blood removed. Died on the tenth day.

Post-mortem—A large amount of coagula; immediate cause of death was hemorrhage; slight peritonitis.—*Ibid.*, p. 129.

Case CLVII.—Æt. 16—first child; labour of four hours; natural delivery. Died on third day.

Post-mortem.—Extensive rent in front, through the muscular substance; sinuses under the peritoneum all around the cervix, and ulcerations of the vagina from syphilis.—*Ibid.*, p. 142.

Case CLVIII.—Æt. 32—fifth pregnancy; labour of forty-eight hours, not very severe; natural delivery; death on the fifth day from violent hemorrhage.

Post-mortem.—Loss of muscular substance of the size of a shilling, opposite the sacral promontory; the peritoneum being entire.—*Ibid.*, p. 143.

Case CLIX.—Æt. 27—sixth labour; labour of one hour; natural delivery; exhaustion came on from hemorrhage. Died on the fourth day.

Post-mortem.—Rent at the junction of the uterus and vagina; muscular substance of uterus much thinned.—*Ibid.*, p. 144.

Case CLX.—Æt. 25—in labour two and a half days; pains brisk; head low; puerperal convulsions; perforation. Died seven hours after delivery.

Post-mortem.—Extensive rent in the muscular substance of the womb, and softening from syphilis.—*Ibid.*, p. 104.

Case CLXI.—Æt. 28—first labour; hydrocephalic fœtus. In labour over twenty-four hours; convulsive, sudden exhaustion; perforation; died on fifth-day.

Post-mortem.—A large rent in front and lateral part of the vagina, and psoas abscess.—*Ibid.*, p. 104.

Case CLXII.—Æt. 26—second labour; firm bands obstructing the vagina; after three days' labour, convulsions set in; delivery natural.

Post-mortem.—Extensive peritonitis; rent in the vagina at its juncture with the uterus, opposite the sacral promontory, admitting two fingers; extensive effusion into the peritoneal cavity.—*Ibid.*, p. 106.

Case CLXIII.—Æt. 35—third labour; pains very strong, but no sign of danger; perforation two hours after pains ceased, and exhaustion appeared. Died on third day. Extensive rent in front at the junction of the vagina and cervix.—*Ibid.*, p. 144.

Case CLXIV.—Æt. 32—fourth pregnancy; died on second day.—*Ibid.*, p. 144.

Case CLXV.—Æt. 30—second labour; narrow outlet; labour of six hours; pains suddenly ceased; cramps; extreme tenderness; vomiting; and debility; perforation three hours afterwards; shoulders delivered with considerable difficulty. Rent in front, and to the left, between the vagina and cervix; died on the second day.—*Ibid.*, p. 144.

Case CLXVI.—Æt. 28—second child; first delivery forced; outlet narrow; labour of twelve hours; pains moderate; membranes broke; rupture soon evident; head low down; perforation extensive; rent in front, at the junction of the vagina and cervix, running into the uterus; died on second day.—*Ibid.*, p. 145.

Case CLXVII.—Æt. 30—sixth pregnancy; labour of forty-four hours; pains trifling; began to sink without any signs of rupture. Head, at the brim, out of reach of forceps; perforator used; delivery speedy. Hemorrhage reduced her much; died on the third day.

Post-mortem.—A small rent of the vagina behind, near to the cervix, opposite the sacral promontory; severe peritonitis.—*Ibid.*, p. 146.

Case CLXVIII.—Æt. 34—sixth labour; duration of labour eight hours; breech presentation; child expelled forcibly; succeeded by alarming flooding; no sign of rupture, but extreme exhaustion; died in thirty hours.

Post-mortem.—Inner coat of vagina and os torn considerably behind, and one small rent in the peritoneal coat not corresponding to the other; peritonitis.—*Ibid.*, p. 146.

Case CLXIX.—Æt. 33—third labour; contracted pelvis; force delivered before; labour of four hours; pains very feeble and ceased suddenly; sinking; version and perforation behind the ear; died in twenty-five hours.

Post-mortem.—Uterus almost torn from the vagina.—*Ibid.*, p. 147.

Case CLXX.—Æt. 28—second labour; vagina obstructed by a firm band; had been much injured by instruments in a previous labour; labour of nine hours;

very strong pains; the band was divided toward the rectum by a bistoury; rupture in four hours after; perforation. Died in twenty-four hours. Extensive opening formed between the vagina and rectum, probably in an old cicatrix.—*Ibid.*, p. 147.

Case CLXXI.—Æt. 24—second labour; pains feeble; head low; began to sink; labour lasted thirty-six hours; perforation at once; died in seventeen hours.

Post-mortem —A rent of two inches in front, in the muscular substance; a quantity of bloody fluid in the belly; peritonitis.—*Ibid.*, p. 148.

Case CLXXII —Æt. 30—second child; antero-posterior diameter of the brim scarce three and a half inches; force delivered before; labour of thirty-six hours; pains feeble; but the child advanced; sudden alarming debility; perforation at once; died in fourteen hours.

Post-mortem.—An opening admitting the finger at the junction of the cervix behind, and a rent of the muscular substance in front.—*Ibid.*, p. 148.

Case CLXXIII.—Æt. 30—first child; severe labour; its duration unknown; head low; perforation; died in fourteen hours.

Post-mortem.—Extensive peritonitis; rent in the muscular substance near the vagina; blood beneath the peritoneum.—*Ibid.*, p. 49.

Case CLXXIV.—Æt. 30—eleventh labour; pelvis roomy; labour brisk for five hours; pains suddenly ceased; this followed by other signs of rupture; head low; forceps tried; the head receded; version; some exertion required to remove the head; died in ten hours.—*Ibid.*, p. 149.

Case CLXXV.—Æt. 26—first labour; extreme deformity of the pelvis; antero-posterior diameter two and a half inches; labour of thirty hours; elbow presentation; wedged into the pelvis; version inadmissible; pains brisk; thorax perforated; "breech brought down with immense difficulty, requiring most laborious exertion for two and a half hours;" died in four hours.

Post-mortem.—A considerable rent at the junction of the cervix and vagina.—*Ibid.*, p. 149.

Case CLXXVI.—Æt. 35—first labour; child and secundines in the abdomen; twelve hours after rupture, version; died in sixteen hours from rupture.—*Ibid.*

Case CLXXVII.—Æt. 27—third labour; pelvis considerably under size; active labour of five hours; head low down; perforation; died in four hours; rent posteriorly, "at the usual place."—*Ibid.*, p. 150.

Case CLXXVIII.—Æt. 26—fifth pregnancy; os partly dilated; most profuse hemorrhage, for which delivered by version; died in two hours.

Post-mortem.—A rent through the os, probably caused by version though by no means forced.—*Ibid.*, p. 64.

Case CLXXIX.—Æt. 30—fifth child; twenty-four hours in labour; pains from slow became more forcible; had cramps for some time before in the right side; pains suddenly ceased; prostration; forceps failed; perforation; extensive rent in the muscular substance in front, at the junction of the cervix and vagina; died almost before delivery finished.—*Ibid.*, p. 150.

Case CLXXX.—Æt. 40—fourth pregnancy; delivered by version for profuse hemorrhage; a rent found at the cervix in front, and to the right; died soon.—*Ibid.*, p. 55.

Case CLXXXI.—Æt. 36—ninth labour; shoulder presentation; had hemorrhage for five or six hours; version; much loss of blood; death soon; rupture of two inches in front through the muscular part.—*Ibid.*, p. 46.

Case CLXXXII.—Æt. 37—sixth labour; pains at no time strong; head advancing slowly; sudden cessation of pain; extreme debility, &c.; labour of forty hours; perforation at once; died almost instantly.

Post-mortem.—A rent of the muscular substance in the "usual place;" cervix not thicker than strong brown paper.—*Ibid.*, p. 151.

Case CLXXXIII.—Mother of three; injured in the abdomen by her husband, six weeks before labour, and not well since: pains severe; suddenly ceased; rupture suspected about twenty hours after, when the uterus was firmly contracted, and the fœtus in the abdomen, out of reach; allowed to remain undelivered as affording the best chance; died thirty-six hours after rupture.

Post-mortem.—Uterus seemed perfectly healthy; rupture from cervix to fundus. —*Dr. Blicke. Ryan's Journ.*, vol. ix. p. 123.

Case CLXXXIV.—Æt. 35—had four living; rupture occurred while drawing at a well; os found dilated; feeble pains came on; head descended; delivered by the forceps of a very large male child about six hours after the accident. Apparent transverse rupture of the muscular substance at the neck; died in twenty hours.—*Dr. Adams. Lond. and Edin. Month.*, 1844.

Case CLXXXV.—Æt. 30—had several children; had been in labour several days; os the size of a dollar; pains at first strong, growing weaker; died undelivered.

Post-mortem.—An immense flow of blood; rent from cervix to fundus posteriorly, where the tissues were not thicker than pasteboard; at other parts three and a quarter or four inches thick.—*Med. Chir. Rev.*, vol. xxv. *Dr. Wombert.*

Case CLXXXVI.—Æt. 38—mother of four dead children. In a previous labour the uterus was perceived to be thickened, and apparently diseased. Pains very strong; os fully dilated; natural presentation; promising case; pains suddenly ceased, with a rumbling in the belly. Rupture after six hours' labour; fœtus receded *immediately* after; the os tincæ was firmly contracted, with a margin of placenta presenting. Died in forty-two hours after rupture, undelivered.

Post-mortem—Rent in right side, which was much thinned; the left thickened: the whole uterus diseased.—*Ryan's Journ.*, vol. ix. p. 288, from *N. Amer. Archives of Med. and Surg. Sci. Dr. Duncan.*

Case CLXXXVII.—Æt. 25—stout; mother of three dead children; two footlings. Rupture five hours from the beginning of labour; os fully dilated; pains powerful, quick and expulsive; pains ceased; suffering in the right side; vomiting and depression; forceps tried and then the perforator. Died twenty-nine hours after rupture.

Post-mortem.—Uterus rather flabby, and universally of a pinkish red, not removed by sponging. A longitudinal rent to the right, behind. At the seat of laceration the tissues soft and easily torn.—*Guy's Hosp. Reps.*, vol. vi. p. 72.

Case CLXXXVIII.—Strong; borne three living children; labours lingering and very painful; linea ileo pectinea exceedingly sharp; pains extremely severe; rupture after labour of ten and a half hours. Complained of a sense of cracking and a cramp; pains suddenly ceased; great prostration; fœtus passed into the abdomen; perforation at once; delivered after some difficulty, the uterus assisting; bones of the cranium highly ossified; died fifteen hours after rupture.—*Ibid.*, p. 73.

Case CLXXXIX.—Æt. 36—had six living children; labours difficult, the fifth instrumental; small pelvis; pains severe and constant; head slightly descended. Twenty-four hours after the beginning of labour, was seized by an attendant and violently jolted up and down during a pain, to facilitate the labour; immediately afterwards pain declined; vomiting and depression. Perforation after six or eight hours; placenta in the abdomen, and its removal difficult. Died about forty hours after rupture. Womb rent through three-fourths of the posterior part and cervix.—*Ibid.*, p. 78.

Case CXC.—Æt. 25—had two still-born, labours instrumental; pelvis small. Pains strong; about twenty-seven hours from the first, had a sense of suffocation; pulse rose; pains gradually ceased; some hemorrhage; head did not recede; died about eight weeks.

Post-mortem.—Rent in posterior part of the cervix and vagina not healed.—*Mr. Birch, Med.-Chir. Trans.*, vol. xiii. p. 358.

Case CXCI.—Mother of eleven; had a blow on the belly; went her full time; labour tedious; restless for twenty-four hours. After rest, procured by opium, strong pains came; delivery soon expected; pains suddenly ceased, and she said the child had slipped into the belly. Died in a few minutes, undelivered. —*Bard's Midwifery*, from *Med. and Phys. Journ.*, vol. xiii. p. 234.

Case CXCII.—Second labour; first delivery by perforation; contracted pelvis; premature labour induced; pains active; case favourable; rupture sudden perforation in about an hour after. Died in about two hours. Rent transverse, opposite the sacrum.—*Ramsbotham's Pract. Observ., Case LXXVII.*

Case CXCIII.—Æt. 30—seventh labour; good pelvis; pains strong and short; os the size of a crown-piece; pains abated, then ceased. Died in a few hours, undelivered.

Post-mortem.—Rent from cervix to fundus on the right side; child escaped excepting the head; fœtus hydrocephalic.—*Ibid., Case LXXVIII.*

Case CXCIV.—Stout; fourth labour; previous labours tedious; duration of labour about twelve hours; labour slow; pains suddenly ceased; prostration, &c. Vectis and the forceps had been tried; head impacted, and delivered with great difficulty in two to three hours after rupture. Died in about thirty-six hours.—*Ibid., Case LXXIX.*

Case CXCV.—Had several living; labour of nine hours' duration, more or less; very favourable; os dilating; sudden spasm-like pain; vomiting and depression; pains gradually ceased; head receded; beyond reach of the finger; turning easy. Died in about seventy-two hours —*Ibid., Case LXXX.*

Case CXCVI.—Æt. 40—seventh child; all the former still-born; deformed pelvis; head perforated when the os equalled a half-crown; one hour after this, rupture took place. Died soon.

Post-mortem.—Transverse rent above the pubes, through the muscular coat and through the peritoneum at one point.—*Ibid., Case LXXXI.*

Case CXCVII.—Second child; antero-posterior diameter of the brim two and a half inches; common labour; perforation about to be made when rupture suddenly took place; cramps in the belly; head receded; turning and perforation behind the ear at once. Died in about twenty-four hours.

Post-mortem.—A large rent opposite the sacral promontory, which was a sharp ridge.—*Ibid., Case LXXXII.*

Case CXCVIII.—Shoulder presentation; rupture had taken place before delivery by version. Died in a few hours.—*Ibid., Case LXXXIII.*

Case CXCIX.—Seventh labour; tedious; no alarming symptoms during labour, but gradually sank (undelivered?) in about twelve hours.

Post-mortem.—Rent of several inches in the peritoneal coat of the back and side; the fleshy portion not implicated.—*Ibid., Case LXXXVI.*

Case CC.—Æt. 30—second child; deformed pelvis; labour going on well; head descending; sudden, severe pain in the belly; pains ceased; great prostration; perforation; delivered not without some difficulty; died about forty-eight hours after; duration of labour about forty-eight hours.

Post-mortem.—Rent in the posterior part of the vagina, not involving the cervix. *Ibid., Case LXXXVII.*

Case CCI.—Æt. 35—had several children; pains pretty frequent and severe; after an increase of these attended by severe pain; head well descended; uterus ceased acting and collapse after about twelve hours' labour. Died two hours after.

Post-mortem.—A large quantity of blood in the abdomen; rent at the junction of the body and cervix; around the rent it was thin, tender and very dark. *Dr. Coffin, New. Eng. Journ.*, vol. iii. p. 114.

Case CCII.—Very large and plethoric; labour tedious, and suffering disproportionate to the uterine action; sudden rupture seven hours after escape of the waters; head receded. Died in two and a half days, undelivered.

Post-mortem.—Uterus very firm and two inches thick; a longitudinal rent admitting three fingers. *Ibid.*, p. 115.

Case. CCIII.—Æt. 35—good health; borne several; at full time fell upon the ice and struck her abdomen, causing her to feel that she was split open; repeated syncopes; incessant vomiting; cold surface; death-like aspect during twenty-four hours; os undilated; occasional pain and extreme tenderness of belly; seventy-two hours after rupture, symptoms no better; os still undilated; artificial dilatation commenced, a "process so obstinately resisted by the unyielding state of the parts as to require from four to five hours to effect a delivery of the child." Child large; profuse hemorrhage, from the uterus not contracting; firm adhesion in part, of the placenta to the uterus. Died on the sixth day from rupture.

Post-mortem.—Gangrenous patches on the walls of the abdomen; fetid gas escaped; a full sized fœtus among the bowels; rent in the superior part in front; very little blood "in the cavities," but a quantity of serous fluid.—*Dr. Hyde. Bost. Med. and Surg. Journ., Jan.* 1842, p. 377.

Case CCIV.—At full term, considerable pain in the belly; after some convulsive movements, fœtus assumed a transverse position in the lower part of the abdomen, and ceased to move. Some days afterward, new pains, and the placenta was extracted; afterward, occasional hemorrhages; the blood becoming putrid; fever and alarming symptoms. Died forty-eight days after rupture.

Post-mortem.—Womb torn in front; fœtus among the intestines; uterus, &c., putrilaginous.—*Dict. des Sci. Med.*, vol. xlix. p. 241, from "*Mélanges de Chirurg.*, tom. ii. p. 295. *M. Saucerotte.*"

Case CCV.—Sixth pregnancy; was awakened from sleep by a cramp in the abdomen; severe pains with vomiting; waters escaped; womb acted violently; os dilating; arm presentation; apparently without warming the fœtus escaped into the abdomen; delivered soon but no relief followed; symptoms of strangulated hernia succeeded; died in twenty-two or twenty-four hours from the first pains.

Post-mortem.—All the viscera gangrenous, and strangulation of the bowels in the rent; rent in the posterior and lateral superior part.—*Ibid.*, p. 243, from *M. Percy in Observs. Acad. de Chirurg.* 1783.

Case CCVI.—Æt. 36—fifth child; labours long and severe; the first followed by chronic cystitis, but for years she had been free from disease. Labour regular from the first and everything was well. After seventeen hours' labour, the waters escaped, after which she had four pains and they then ceased. Child could be felt in the abdomen; rupture suspected, but there were *no symptoms, no pain or sinking or motion of the child.* Ergot was given and in about five hours, pulse rather weak and sinking; an attempt was made with forceps, then with the lever. The child suddenly escaped into the abdomen; profuse hemorrhage and syncope when the hand was introduced. Died about twenty-one hours after rupture.

Post-mortem.—Extensive rent from the fundus to the bladder; parietes of the uterus thin as paper; and at the insertion of the Fallopian tubes was transparent and frail as cobweb; bladder scirrhous and in parts two and a half inches thick. Pressure of this scirrhous mass probably caused the thinning.—*Phil. Med. and Phys. Journ.*, vol. iii. p. 422.

Case CCVII.—Æt. 34—delivered in the first by forceps; in the second by version: antero-posterior diameter of the brim not over three inches. Os dilated; waters escaped; pains strong; no descent; prolapsus funis. After five hours labour, version attempted; the head was arrested; forceps applied; these failing, perforation; great difficulty experienced in turning and delivery. Metritis followed. Died on the twenty-eighth day.

Post-mortem.—Rent of the whole of the right side of the neck.—*Desormeaux. Archives Gén.*, vol. ii. 1823, p. 77.

Case CCVIII.—Æt. 30—first labour; good pelvis; very rigid os. On escape of the waters, after several hours of severe labour, blood escaped, and death followed soon from hemorrhage.

Post-mortem.—A longitudinal rent at the posterior and lateral part; the child in the abdomen, and much blood. Walls at the place of rupture evidently thinned; the neck remarkably thick and hard, almost scirrhous.—*M. Guibert. Arch. Gén.* vol. ix. 1825, p. 390.

Case CCIX.—Æt. 34—fifth pregnancy; had great anteversion of the womb, so that it hung over the thighs. When in labour five hours, just as the finger reached the fundus of the vagina, cried out she was killed, and fainted at once; pains ceased; waters at the same time escaped with blood; child escaped into the peritoneal cavity; feet felt, seized and dragged through the rent; child born asphyxiated, was recovered but died soon. Died.

Post-mortem.—The whole posterior part torn from the vagina; a semicircle of four or five inches, the edges of the rent rough.—*M. Moulin. Arch. Gén*, 1825, p. 391.

Case CCX.—Well formed; borne several. At the seventh month, after a walk, had hemorrhage and was very weak and ailing for two months. At full time pains came on but soon went off; os undilated. After several days a fœtid discharge with bones of part of the fœtus escaped by the vagina; this continued and for several months she had a prospect of recovery. Motion of a carriage during a ride induced inflammation, which soon proved fatal.

Post-mortem.—A small rent of the cervix in front through which the *debris* of the fœtus had escaped; remainder of the fœtus in a membranous sac disconnected from the abdomen.—*Dr. Sims. Med. Facts*, vol. viii. p. 150.

Case CCXI.—Thirteenth labour; had an enormous tumour of the spleen extending near to the pubes. Suffered a good deal in pregnancy; especially in the latter days; pains very strong; three days after escape of the waters felt a cracking in the womb, and began to bleed; duration of labour five days; died undelivered.

Post-mortem.—Fundus completely torn through; the enormous spleen compressed the womb.—*Ibid.*, vol. xxxvii. p. 262, from "*Il Filiatro Sebezio*, 1825."

Case CCXII.—Pains moderate and regular; after gradually declining for some time, ceased. Three and a half hours after this her face was pale, rather anxious; pulse 160, small; belly very tender; head low under the pubis. Forceps applied but the head could not be moved, even with a third blade; the limbs at this time felt in the abdomen; turning now resorted to, and the mother died during delivery; rupture on the left side.—*Dr. Griscom. New York Journ. Med. &c.*, 1844, vol. ii. p. 333.

Case CCXIII.—Æt. 28—third child; os dilated; pains during two hours became intense; no descent of the head. About nine hours from the first of labour, pains suddenly ceased and a colicky pain remained. Nothing but this to indicate rupture, and nineteen hours afterward, ergot was given without effect; four hours afterward, dark vomiting and tenderness of the belly; turning about twenty-five hours from probable time of rupture: done with considerable difficulty; hemorrhage to about six ounces; hernia of the bowels; died three hours after delivery.

Post-mortem.—A pint of bloody fluid; womb, contracted; a transverse rent in front half across the os and a short one of the os; two small exostoses of the pubes. —*Dr. Wagstaff. Ibid.*, p. 381.

Case CCXIV.—Tenth labour; previous labours easy. About seven and a half hours after the escape of the waters, she felt a slight acute pain in the belly and she said; "feel what a strange lump is in my side!"—the head had receded; turning soon after, with perforation behind the ear; child hydrocephalic; rent through the whole extent of the left side; died in twenty-three hours.—*Dr. Fahnestock. Ibid.*, p. 383.

Case CCXV.—Contracted brim from prominence of the sacrum. Labour remarkable for violent pains, the suffering having been excessive for six hours, the pains ceased; collapse ensued; membranes were broken, and os dilated; rupture twelve hours after commencement of labour; forceps applied but failed; perforation; died on the third day.

Post-mortem—Rent to the left and behind.—*Mr. Roberton*, in *Edin. Med. and Surg. Journ.*, July, 1834.

Case CCXVI—Æt. 30—delicate; second labour; the first difficult; the antero-posterior diameter of the brim diminished by projection of the sacrum. After thirteen hours had a sharp pain in the lower part of the belly, followed by vomiting and syncope; head on the perinæum; condition hopeless; considerable flooding; craniotomy.

Post-mortem—Rent in the vagina behind, into the body of the uterus.—*Ibid.*

Case CCXVII.—Æt. 37—eleventh labour; brim narrow, from exostosis of the pubis; labour very long; prolapsus funis; os dilated; head filling the hollow of the pelvis. After twelve hours of labour, died suddenly without appreciable cause, undelivered.

Post-mortem.—In the left and front a rent of two inches in an ecchymosed part; foot of the fœtus, enveloped in the bag of membranes, thrust through it; several pounds of blood lost.—*Ibid.*

Case CCXVIII.—Æt. 28—sixth labour; four still-born; one a forceps case; brim narrowed by prominence of the sacrum; labour but little painful; at the end of six hours, all at once a sharp pain came on; immediate hemorrrhage, and collapse directly followed. On attempting to perforate, the head retreated; version; head delivered with much difficulty; died on the second day.

Post-mortem.—Rent from cervix to fundus.—*Ibid.*

Case CCXIX.—Æt. 44—fifth labour; four first very difficult, but not instrumental; sacrum prominent, and exostosis of pubis. After seventeen hours, labour pains became very violent; in two hours, excessively painful cramps in the belly, then vomiting and cessation of pains forthwith. Two hours afterward, version; the fœtus almost entirely out of the womb; head extracted with much difficulty. Died on the third day.

Post-mortem.—A transverse rent of the neck, involving the bladder.—*Ibid.*

Case CCXX.—Æt. 29—narrow pelvis; rupture after a labour of ten hours; rent to the right in front. Delivered between two and three hours after rupture. Termination unknown.—*Ibid.*

Case CCXXI.—Æt. 26—stout and healthy; fourth labour; former labours severe and protracted; slightly contracted pelvis. After severe suffering for several hours, the head being unusually large, and considerably advanced in the pelvis, during a severe pain had a sense of something giving way; the head receded; hemorrhage followed; faint and restless; nausea, but no vomiting; pale, and had distress in the belly. One hour afterward, no presentation to be felt; state alarming; pulse rapid and feeble; great restlessness and anxiety. Gastrotomy, occupied but a few minutes; felt much relieved; suffered less than in former labours, and began to rally; the membranous bag was found unbroken; considerable blood among the intestines; female child of eleven pounds. Patient improved until the eighth day, when she gradually sank.

Post-mortem.—A dark brown ragged opening, chiefly in the posterior wall of the vagina, and extending through a small portion of the cervix; also a considerable transverse rent at junction of cervix and vagina: edges of the rent irregular, dark brown, but free from gangrene.—*Prov. Med. Journ.*, 1845, p. 549. *William Jackson.*

Case CCXXII.—Æt. 20—primipara; good health. After eight hours' labour, os nearly dilated; waters escaped; doing well; her attendant gave a dose of ergot; pains were increased; head receded; she was found exhausted, and a shoulder presented; version. Died in a few days.—*Ibid.*, 1842, p. 278, from *Journ. Pract. Med. de Montpelier. M. Delmas.*

Case CCXXIII.—A negress, æt. 35—mother of several; always suffered before and after labour. Suddenly seized with uterine pains, which went off suddenly, and were followed by fainting, hemorrhage, and nausea; os admitted the little finger; was bled, and ergot given; os dilated by force about fourteen hours after; turning. Died in about seventeen hours from rupture.

Post-mortem.—Extensive rent posteriorly; uterus unusually soft; traces of inflammation of mucous surface at different periods; peritoneum had "erysipelatous discolouration."—*Ibid.*, 1844, p. 250. *Dr. Arnold, of Jamaica.*

Case CCXXIV.—Æt. 30—seventh labour; had griping pains in the abdomen for several days. Pains during the first eight hours, irregular and spasmodic; small doses of ergot given; os well dilated; ergot again. After eleven hours of labour, had violent cutting pain, most excruciating, with a loud report which awakened the doctor. Great bearing down pains for a few moments, followed by a cessation of pain for several hours. Delivered after several hours, by repeated application of the forceps. Died in thirty hours.

Post-mortem.—Rent posteriorly; with hernia of the bowels.—*Dr. Gill, Ibid.*, 1841, p. 208.

Case CCXXV.—Æt. 38—very fat; had seven children, and two abortions; labours always severe and slow; abdomen pendulous; os dilated; pains powerful but "abdominal;" head low. About nine hours after rupture of the membranes, had a very severe pain, and the uterus ceased acting for three hours, when symptoms of great prostration came on, and a rent could be felt. About three hours from rupture, version; the head assisted by the blunt hook; the child and secundines in the abdomen, with hernia of the bowels. Delivery effected with great difficulty. Died in about three and a half days.

Post-mortem.—Upper part of the vagina at the junction with the uterus, lacerated posteriorly for one-half its circumference.—*Mr. Elkington. Ib.*, 1844, p. 372.

Case CCXXVI.—Second pregnancy; pains severe after rupture of the membranes. After twelve hours' labour, green vomiting came on, followed in a few hours by convulsions; forceps failed; version effected with difficulty. Death.

Post-mortem.—A rent of uterus and vagina admitting the fist; hernia of the bowels.—*Lond. Med. Repos.*, vols. xii. and xiii. p. 159, from *Bullet. Med.*, 1819.

Case CCXXVII.—Æt. 26—fourth labour; antero-posterior diameter of the brim three inches; never required artificial aid. During forty-eight hours had slight grinding pains, which went off; during the next twelve hours pains strong and frequent; os dilated. In two to three hours more, bilious vomiting; pulse quick; this was preceded by a sound of a snap, a remission of the pains, and an exclamation that all was over! Between four and five hours after this, version and perforation behind the ear; it was easily accomplished, the fœtus being small. Died between five and six days from rupture.

Post-mortem.—A rent of four to five inches in the right side; hernia of the bowels: edges of the rent and inner surface gangrenous.—*Mr. Holmstead. Ibid.*, vol. xxii. p. 209.

Case CCXXVIII.—An unusually prominent sacrum; pains very slight, and subsided entirely after the escape of the waters; the os dilated; presentation natural. There had been no vomiting, scream, or other sign of rupture, and ten hours after the cessation of pain she was only a little restless, and respiration a little hurried. Ergot given without any effect. Death.

Post-mortem.—A rent in front, in the direction of the linea ileo pectinea, which was not sharp, two-thirds across the uterus. It was of extraordinary thinness.—*Ibid.*, vol. xxiii. p. 520, from *Philada. Journ., No.* 17. *Dr. Broyles.*

Case CCXXIX.—Rupture of the whole parenchyma without implicating the peritoneal covering, from manual violence. Hemorrhage came on in twenty minutes; died soon from flooding.—*Davis' Obstet. Med.*, p. 751.

Case CCXXX.—Subject to uterine hydatids; waters escaped when the os was only equal to a half crown; pains gradually increased for several hours, and entirely ceased; no alarming symptoms. Six weeks after this, portions of the fœtus began to be discharged from an abscess near the navel, and from the vagina. Died after two months.

Post-mortem.—Small intestines communicated with the uterus by four apertures. *Mr. Windsor, of Manchester*, in *ibid.*, p. 756.

Case CCXXXI.—Æt. 40—first child; rickety; pelvis very narrow; after severe pains for several days, membranes unbroken, felt something tear in her abdomen. Perforation; there was no great flooding; no vomiting, nor convulsions. Died in ten or twelve hours.

Post-mortem.—Rent at the fundus admitting the hand; hernia of the bowels.—*Smellie's Cases*, vol. iii. p. 385.

Case CCXXXII.—Arm presentation; midwife endeavoured three times to turn, while the patient was struggling to prevent her, and during pains; after uninterrupted pains of twenty-four hours, the hand protruded; very soon after she became suddenly easy; ceased to cry and almost at once vomited; face cold; breathing nearly stopped. Turning; died in three hours. A circular rent of the size of a sixpence in the cervix between the fœtal shoulder and the pubis.—*Ashwell's Parturition*, p. 316.

Case CCXXXIII.—Pains feeble and at long intervals for a few hours; alarming symptoms followed upon slight hemorrhage, and the pains ceased; respiration laboured. Died.

Post-mortem. Rent posterior; uterus sloughy, thin, and livid near it.—*Gooch's Midwifery*, p. 251.

Case CCXXXIV.—Fourth labour; pelvis narrow; corpulent. Pains very strong, with a tearing sensation in the back in the intervals of pain; head at the brim, but did not advance; much coffee-coloured water escaped on rupture of the membranes; when in labour over eight hours, the head receded, and a "ripping" sensation in the abdomen; version; fœtus after a while delivered as far as the hips and allowed to remain. Rent posterior, half way up to the fundus.—*Edin. Pract. Med.*, vol. v. p. 490.

Case CCXXXV.—Second child; the first a forceps case. Pains for thirty hours, of unusual severity; os completely dilated; pains suddenly ceased; slight hemorrhage; immediate vomiting of dark green; excessive prostration; difficult breathing; extreme anxiety; pulse extremely rapid and feeble. In fifteen hours no part of the fœtus could be felt *per vaginam;* form of abdomen changed, and extremely tender; child's limbs distinctly felt; a coil of intestines in the womb, and a large rent in the left side; was in a better state than at the time of the accident; no pain except on pressure; fissure in the womb, so contracted as not to admit the finger. Gastrotomy nineteen hours after rupture; a large quantity of bloody fluid in the abdomen, and the placenta; intestines much inflamed; child large; not half an ounce of blood lost in the operation, and was comfortable after it. Died sixteen hours after the operation, and thirty-five after the rupture.—*Dr. Delafield. N. York Med. Journ.*, vol. vii. p. 351.

Case CCXXXVI.—Frightened the first day of labour; eight days after it began she had no pains, and was extremely low; chin presentation; version; dead child; hernia of the bowels. Died six hours after delivery.—*Smellie's Cases*, vol. iii. p. 386.

Case CCXXXVII.—After eleven or twelve hours of very long and severe pains, had a terrible movement of the fœtus and fainted. Pains ceased; the belly was hard, tender, and painful; incessant vomiting, &c.; head at the brim; version after twelve hours, with little difficulty; the child's limbs among the intestines. Rent in the fundus. Died in three days.—*La Motte* (1726), p. 463.

Case CCXXXVIII.—Tenth pregnancy; strong and hearty; pains lively and frequent; waters escaped; arm presentation. Pains severe for only one and a half or two hours, then gradually became feeble until six hours from the first of labour. child in the abdominal cavity; version, without difficulty. Died in four days.

Post-mortem.—The rent admitted the tip of the little finger.—*Ibid*, p. 464.

Case CCXXXIX.—Primipara; after three days of labour, patient and midwife both heard something burst within her; her abdomen was of an altered form; the head impacted. Died while the doctor was gone for his instruments.

Post-mortem.—Uterus tympanitic and emphysematous on the left side where the peritoneum was separated. Substance of the womb one-eighth of an inch thick and tore like writing paper; rent posterior, from the os towards the left.—*Med. Rev. and Mag.*, vol. i., "from *Duncan's Annals*, 1798."

Case CCXL—Ninth child; twins twice; all natural. Pains had been very strong and ceased; had anxiety, pain in the belly, &c. Delivered; mode not stated. Died three minutes after delivery; hernia of the bowels; rent anterior from the os upwards.—*Ibid.*

Case CCXLI.—Æt. 38—first labor; progress tedious; head impacted; delivery natural. Died on third day.

Post-mortem.—Rent of two and a half inches in the right side from the fundus to the cervix; no mark of gangrene.—*Ibid*, vol iii., from *Med. Facts and Observs.*, vol. viii.

Case CCXLII.—Æt. 36—fourth labour; arm presentation; after "utmost efforts at delivery," died undelivered. Duration thirteen hours.

Post-mortem.—Rent in the left side; extremity of rent black, thin and putrid; the inferior part preternaturally thickened to equal three fingers; remainder healthy.—*Heister's Observs.*, No. 516.

Case CCXLIII.—Had borne several; labour not far advanced; vomiting came on; became pulseless; clammy perspiration; cold extremities; child felt through the parietes of the abdomen. Died in about three hours undelivered.—*Dr. Bedford's Notes to his Translat. of Chailly*, p. 268.

Case CCXLIV.—Had borne several; head descending; somewhere about three hours from the beginning of labour, a snap was heard; immediate vomiting and collapse; very soon delivered by forceps. Died in about ten hours.—*Ibid.*

Case CCXLV.—Was in labour eighteen hours; ergot had been given, and version attempted afterwards. Died undelivered, in about two hours after the presumed rupture.

Post-mortem.—A rent of six inches in the left lateral wall.—*Ibid.*, p. 228.

Case CCXLVI.—Delivery by natural effort; placenta retained by spasmodic contraction; died:—*Burns's, op.*, p. 5, 475.

Case CCXLVII.—Head resting on the perineum and head receded. Delivered; mode not stated. Died.—*Ibid.*, from *Douglas' Essay*, p. 50.

Case CCXLVIII.—Second child; the first a craniotomy case; short diameter of the brim two and three-fourths inches. Artificial premature delivery at the eighth month; rupture three and a half hours after the membranes broke; turning very soon. Died on fourth day.

Post-mortem.—*Linea ileo pectinea* very sharp, and sharp juttings from the pubis into the cavity.—*Ramsbotham, Process of Parturit.*, p. 417.

Case CCXLIX.—The head at the brim escaped into the abdomen, whilst the breech was forced into the pelvic cavity. Breech brought down and extracted with some difficulty. Rent at the cervix into the vagina.—*Ibid.*, p. 419.

Case CCL.—Æt. 28—well formed, but small; sixth child; pains mild at first, became severe. About six hours from the first of labour she was pale; restless; averse to move; irritable and desponding; pains trifling and unfrequent; she had flooded; the os a little dilated; membranes tense; presentation natural; membranes artificially ruptured; in a few pains the head descended into the pelvis. After a time ergot given; energetic pains induced; child's head born; and after a cessation of pains for fifteen minutes, the body and placenta expelled. Died in six hours.

Post-mortem.—Uterus firmly contracted; rupture posterior near the fundus; of the size of a crown-piece; its margin irregular, surrounded by a reddened stain; near it three or four small cracks. The rupture extended only two-thirds through the muscular substance; womb seemed sound elsewhere.—*Mr. Chatto, Lond. Med. Gaz.*, vol. x. p. 630.

Case CCLI.—Mother of several; for two hours from rupture of the membranes, labour favourable, and a prospect of speedy delivery. On sitting up and making some exertion, had a sudden pain and fainting, with agitation, and said "the child had gone back again;" head receded at once; anxiety; quick respiration; restlessness, thirst, vomiting; entire cessation of pains; slight hemorrhage; rupture evidently not suspected for twenty-one hours; then the limbs felt; the child being in the abdomen, and putrid; version difficult, but the uterus uncontracted; hernia of the bowels after delivery. Died immediately.

Post-mortem.—Belly distended with gas; three pints of blood and water removed; a rent of the whole length of the womb posteriorly; this part had the livid appearance of gangrene; the rest natural.—*Dr. James, in Am. Med. Repos.*, vol. vii. p. 328.

Case CCLII. (Case CXIII. *continued.*)—In her fourth labour Cæsarean section, on account of supposed contraction of the pelvis. After this delivered of twins at full time alive, by another practitioner. In her sixth labour the uterus acted with great energy, and she exclaimed that something had given way; considerable hemorrhage followed; vomiting and syncope; head receded; gastrotomy; child almost all in the cavity of the peritoneum; dead. Lived thirty-six hours.

Post-mortem.—Rupture at the place of previous incisions.

Case CCLIII.—Æt. 32—third labour; pains feeble and few at first; rupture of membranes accompanied by slight hemorrhage; regular pains ceased, and an irregular pain took their place. Ergot was given; the os dilated; the head presented; forceps could have been applied, but it being many hours after rupture before she was seen, it was considered too late. Died soon after admission.

Post-mortem.—Extensive rent in the right side through the muscular substance only, from the cervix to the round ligament.—*M. Dubois*, in *Journ. de Méd. et Chirurg.*, July 1846, p. 293.

Case CCLIV.—Æt. 28—small and always sickly; very bad health during pregnancy; mother of three. Fell with force, and at the time felt a sense of tearing and giving way inside; slight vaginal hemorrhage; was restless; had an indescribable oppression in the abdomen for three days, but no pain; kept about the house. Strong pains came on, followed after some hours by exhaustion; the fœtus was in the peritoneal cavity; version. Death five hours after delivery.

Post-mortem.—All the abdominal viscera intensely inflamed, except the uterus; right side of the uterus "dark-looking, relaxed, thin as a sixpence in some places, and transparent." A fissure three and a half inches in extent, with ragged sloughy edges running perpendicularly to the cervix; the remainder of the womb healthy.—*Mr. Spark, Lond. Med. Gaz.*, vol. iii. p. 218.

Case CCLV.—Æt. 28—fifth labour; after a sudden movement of the fœtus had a pain and a sense of faintness; rallied; os somewhat dilated. Eleven hours afterwards fluid detected in the abdomen; delivered by artificial means, and died twenty-two hours after the commencement of the symptoms.

Post-mortem.—Escape of a large quantity of blood; uterus large, soft and pulpy. Transverse rent at the fundus of the peritoneal coat, and not implicating the muscular coat; posteriorly a zigzag rent, involving the superficial fibres, and opening a large vein from which the hemorrhage had occurred.—*Dr. Levcr. Lond. Lancet*, Feb. 1846, p. 588.

Case CCLVI.—Æt. 47—borne no child for six years; rupture about twenty-five hours from the first of the labour; pains vigorous, and ceased gradually; no bad symptoms for five hours; one hour after rupture died undelivered.

Post-mortem.—The fœtus in the peritoneal cavity, excepting the head, which was impacted; walls of the uterus "everywhere oily, and of a soft and doughy feel; rent in front to the left, where the walls were exceedingly thin and softened, and of a deep red." *Dr. Elliot. N. Y. Annalist*, Oct. 1846, p. 7.

Case CCLVII.—Æt. 40 to 45—mother of four; previous labours easy; duration of labour a little less than thirty-six hours; labour favourable; within a few hours after its commencement she complained of weakness, which continued with occasional rigors until death. These, the only symptoms that could be learned by inquiry. A few moments before death a rigor, and a sudden noise in the abdomen, as if the escape of a body from a confined place. Died undelivered; rupture probably took place at the time the weakness came on.

Post-mortem.—Two hours after death; a large quantity of sero-sanguineous fluid of dark colour, and slightly offensive smell; child enormous, completely in the abdomen with the placenta; uterus contracted, with a transverse rent, admitting the hand about the junction of the cervix and the body. "Nothing like thinning or disease of any kind in the uterine walls;" rupture owing to the great size of the head, which could not have passed the brim, and which was indented by the "immense force."—*Dr Wragg. South. Med. Journ.*, March 1847, p. 146.

Case CCLVIII.—Æt. 23—first child; after a labour of over forty-eight hours; with extreme rigidity of the os uteri; the whole os burst off; delivered by perforation; the head being low down. Died after eleven days.—*Dr. Lever. Guy's Hos. Reps.*, Oct. 1845.

Case CCLIX.—Æt. 20 to 30—had regular pains for two hours, when she had sudden pain in the abdomen and nausea; great irritability, faintness and restlessness followed. Died in fourteen hours undelivered.

Post-mortem.—Forty to fifty transverse lacerations on the posterior surface; none over one-twentieth of an inch in depth; from one-fourth of an inch to two inches in length, and occupied nearly the whole posterior surface.—" *Dr. C. M. Clarke*, from *Trans. Improv. Med. and Surg. Knowledge in Dub. Med. Jour.*, vol. v. p. 324.

Case CCLX.—Delivered in a former labour by forceps; presentation natural; no distortion of the pelvis: towards the end of the first stage of labour, the pain ceased; presentation receded: considerable hemorrhage followed; dark coloured vomiting took place. Died undelivered.

Post-mortem.—The whole contents of the uterus were in the peritoneal sac, with very little blood. An immense rent of the lower part of the uterus and vagina on the left side, the edge of which was of a dark red colour, and as soft as jelly; softening had affected nearly the whole womb, but not from decomposition.—*Dr. Robert Lee's Midwifery*, p. 434.

Case CCLXI.—Second child; membranes ruptured early; pains became exceedingly violent; at the end of about fifty hours from the escape of the waters, the os being of the size of a shilling, during an examination, under a strong pain, the os split on the right side a considerable distance up through the cervix. Died on the fourth day of uterine inflammation.—*F. Ramsbotham, op. cit.*, p. 183.

Case CCLXII.—Mother of nine; anasarca and ascites during pregnancy; the os from the beginning was thick, soft, puffy, and œdematous; when a little above the size of a crown-piece, during an examination under a strong pain, the cervix was rent upward, posteriorly; child immense. Died on the fifth day.—*Ibid.* p. 184.

Case CCLXIII.—Third labour; the first instrumental, the second difficult; in labour from Saturday until Monday-noon; head presentation; contraction of the superior strait; very little progress. In the absence of the physician, alcoholic drinks were freely given to increase the pains, in place of the opiates which were ordered. Had a sudden, severe pain in the side like a stitch; pains began to diminish, and soon ceased; and died in two hours.

Post-mortem.—Cervix uteri torn across half way round the organ; the head impacted; body, limbs and placenta in the peritoneal cavities.—*Dr. Post. N. Y. Jour. Med.*, May 1847.

Case CCLXIV.—Sixth labour. During a "tremendous pain," she felt something give way in the region of the uterus; the pain immediately ceased, and was renewed slightly two or three times. Frequent pulse; tender abdomen; anxious countenance; lips swollen and somewhat livid; and begged for delivery. Some hours after, the os was contracted as after labour; the vagina extensively rent at its junction with the cervix, and entirely detached to the left, and in front; fœtus and placenta in the peritoneal cavity. Delivered by version, which occupied thirty minutes; the hemorrhage had been slight; bore the operation well, and felt gratified. Died twenty-four hours after rupture.—*Dr. Workman. West. Journ. of Med. and Surg.*

Case CCLXV.—Æt. 36—robust; sixth labour; previous deliveries artificial; labours painless; pelvis well formed, and of good dimensions; pains feeble and infrequent for the most part. After several hours, she had a severe pain which she thought moved the child; neither child nor os could be felt; distress, vomiting, and faintness soon followed. These abated, and she was bled for severe pain at the pit of the stomach; suffered greatly for two days, then became gradually more comfortable. On 16th day, had a profuse discharge of waters. By the 20th day, the abdominal integuments sloughed around the umbilicus; her size was less; discharges very offensive; she was sinking rapidly. An incision of eight inches was made, and the child withdrawn; the placenta separated and removed; the cavity was formed by the viscera glued together, and the peritoneum of the parietes, thus shutting off all connection with the rest of the abdomen; and contained putrid blood and water. Four days after this, injections thrown up the vagina passed out of the abdominal incision. Little fever followed; felt greatly relieved, and was about the house in five weeks; menses returned, and she became strong.—*Dr. Snell. Journ. Maine Med. Soc.*, 1834, p. 1.

Case CCLXVI.—Æt. 44—several children, and generally easy labours. Had been in labour twenty-four hours; pains very strong; child low down, pressing on the perinæum; shoulder presentation; version without difficulty. On removing the placenta, a rent of about four inches was felt over the pubes; rigors and vomiting came on. Died in about twenty-four hours after delivery.—*Dr. Ayer. Ibid.*, p. 8.

Case CCLXVII.—Æt. 34—mother of three or four. After about twenty-four hours, the pains at first light and trifling, and afterward abating; waters evacuated and funis prolapsed; the vectis and crotchet were tried, and failed. She only complained of great soreness and distress about the umbilicus. After a few hours she sank and died, undelivered.

Post-mortem.—A knee of the child passed through a rent in the anterior part, four or five inches long; and running from the cervix toward the fundus; a large quantity of blood in the abdomen. *Ibid.*, p. 9.

Case CCLXVIII.—Æt. 42—mother of several. Physician had been with her twenty-four hours; an arm presented, and the chin and mouth were to be felt; an attempt to turn failed; great distress in the abdomen, a large tumour could be felt in the epigastrium; a foot could be felt, and its toes: vomiting now came on, which lasted for about fourteen hours, till she died undelivered.

Post-mortem.—Fœtus all in the abdomen; body of the uterus nearly separated from the cervix, and connected to the vagina only by a small portion; the uterus was putrid.

Rupture had taken place early or before labour, as there was nothing like labour pain after the rupture of the membranes.—*Ibid.*, p. 10.

Case CCLXIX. Died five months after rupture; part of the fœtus having escaped by the anus; fœtus putrid, and viscera disorganized; rent apparently very large; *cicatrized*, except for eight or ten lines. *Ibid.*, from *Recueil Périod. de la Soc. de Méd. de Paris*, tom. x. p. 268.

The following communication, with the interesting cases appended, is from Dr. Channing, Professor of Midwifery in the Medical School in Harvard University, whose extended experience in the practice of obstetricy has afforded him opportunities of seeing numerous exămples of this accident.

Boston, *Aug*. 30, 1847.

Dr. J. D. Trask:—

Dear Sir:—Enclosed are rough, very rough notes of cases of ruptured womb, which have more or less directly come under my notice. You will not regard them as occurrences in my practice, or that of any other single person. I know of but one physician who has had *two* cases in his own practice. I have not had one in my own. Physicians may and do pass whole lives without observing cases which may not be rare in those of others, and this too without the least suspicion of their want of skill, or of knowledge. * *

I have other cases, I think, but my notes are not at hand, which I regret, as it would give me pleasure to have sent you the whole.

The recoveries in my cases, are about ten per cent. * *

I remain your friend, &c.

W. CHANNING.

Several cases of ruptured womb have occurred here. In four of them the women were not delivered.

[Case CCLXX.]—In one of these, in which I was especially consulted, the woman refused to have anything done after rupture occurred. In another,

[Case CCLXXI]—the medical attendant preferred that the case should be left to nature.

[Case CCLXXII.]—In a third, the child was turned, and advanced well, until the head was to enter the brim. Here was delay. The woman said, "I am dying; will you stop till I am dead?" She died in a few minutes, and it was then very satisfactorily ascertained, that the diameter (the conjugate) of the brim was so much diminished as to prevent the entrance of the standard fœtal head, except by very powerful effort, and it was during such, as I was informed by the medical attendant, rent occurred.

[Case CCLXXIII.]—In a fourth case in which I was consulted, death occurred before delivery; and, because, of the opposition of the patient to any operation. I examined the woman after death. The fœtus was lying among the intestines. The womb was well contracted, presenting a flattened thick mass, perfectly white, except in the part of it in which rupture had occurred. Here it was *thin*, thin as a *membrane*, and perfectly black. The contrast between this state of things, and of that which bordered it, was most striking. The extent of which the *thinning* process had extended, was a space judged to be equal to the surface of two hands' breadth. It was through the centre of this the child had escaped. It was in a portion of the womb which very exactly corresponded to one in the abdomen—viz: the left iliac region, and extending upward from that—in which the woman had experienced much soreness and tenderness, in the latter months of pregnancy, and which she ascribed to her habit of resting that part of the uterine tumour against the washing-tub, at which she almost daily worked, for self-support, and to support her family. There is another fact of interest in this case. The head, which had been forced fairly down into the pelvis by the pains, *did not in the least recede* after rupture, but remained just where it was before the rent occurred. Nay more, so fairly impacted was the head, that it was with great difficulty that I could draw it back again, after opening the abdomen, and to do which I was desired to make the *post-mortem* examination. A writer has recently advanced the doctrine, that in a majority of cases of rupture, there is preceding, and predisposing disease of the womb. This opinion has some confirmation in this case. There was found a state of the organ, or a part of it, entirely different from its condition elsewhere, and which was certainly preceded by symptoms denoting a morbid condition of the part.

In *two* cases *dropsy of the fœtal head* existed. The water was discharged by perforation after turning, and because the head could not pass until reduced in size.

[Case CCLXXIV.]—In one of these, sudden and excruciating pain in one groin and above it, immediately preceded the rent, perfect repose following the accident. The woman survived till the fifth day, promising to do well, and then rapidly sank without the supervention of disease which was marked by any distinctive symptoms.

[Case CCLXXV.]—In the other case, death occurred soon after delivery.

In two cases a remarkable lesion of the womb was discovered after death, and which seemed allied to a morbid condition which might have preceded labour, but in which labour was the exciting cause of the lesion alluded to. In both the placenta was retained.

[Case CCLXXVI.]—In the first, I saw the woman some days after the delivery of the child, on account of symptoms resembling very nearly those of puerperal peritonitis. I was told that the placenta was retained, and that the woman had suffered much since the birth of her child. I found the placenta projecting somewhat beyond the os uteri, and that it was moveable. I brought it away. It was cylindrical in shape; long, round; of a light gray colour and very firm, as if it had been strongly compressed by the womb. Some temporary relief followed its removal, but in a few days after symptoms of grave peritoneal inflammation came on, and the woman died.

Upon examination, sero-purulent effusion, with masses of floating lymph were found in the abdomen. The womb was found contracted, but in shape corresponding to that of the placenta, and at the top of it having an opening which communicated into its cavity and with that of the peritoneum. An abscess had formed in the substance of the womb at its fundus, and from this pus was passing into the abdominal cavity.

[Case CCLXXVII.]—In another case; the second of the above, of anomalous uterine lesion, labour in its two first stages was well accomplished. The placenta was retained. The cord parted; attempts were made to deliver the placenta. They failed. I saw the patient at this time and advised, after an examination, to make no farther forcible effort to bring away the placenta, but to wait, and to be governed by circumstances. The patient was for a few days comfortable. Then signs of peritoneal inflammation occurred. She was seized with very severe and forcing pains. Examination was made, but the os uteri was found firmly closed and would not admit of passing the hand or a finger. The pains at length subsided. The patient sank and died. Death occurred more than a week after the child was born.

Upon examination the uterus was found at its fundus, to have experienced a lesion through which about half of the placenta was found protruding from its cavity into that of the abdomen. The opening was circular; a form which wounds in the womb are apt to assume, in consequence of the equal action of its muscular fibres.—(See *Charles Bell on Muscularity of the Uterus.*)

Rupture of the womb is often preceded by very violent and distressing pain, in the midst of some one of unusual severity, the organ gives way.

[Case CCLXXVIII.]—A case occurred in which nothing of this kind happened. Labour; second child; was wholly natural and easy. The physician was surprised to find, on examination after a pain, made to ascertain what was the progress of the labour, that the head had receded from the position it had just before occupied. Not that it had merely done so as is common during the uterine relaxation which follows pains, but that it had much exceeded the ordinary measure. He found that by gentle pressure the head receded more and more, and soon being left to itself, that it entirely passed out of the pelvis. Rupture was thus at once declared and soon showed its ordinary effects. The child was delivered by turning. It was found entirely out of the womb, and lying among the intestines.

Reaction now took place; no violent symptoms attended this; the patient was comfortable. She lived five days after rupture, and in a condition so slightly morbid as almost to have encouraged hopes of recovery. I learned the above particulars of this case from the medical attendant; not having seen it till at a meeting for a *post-mortem* examination which circumstances prevented.

[Case CCLXXIX.]—I was one day dining with a friend in the country. He told me his gardener's wife had been in labour that day, and that the womb had given way, and she was not delivered. I went in to see her. I found her much sunken, restless, vomiting, cold, pulse small and very rapid. Her appearance was miserable enough. I now learned that the rent had occurred at 11 A. M. I told my friend that I should much like to see the physician, and he was sent for. He came between three and four P. M. and after consultation, it was agreed that an attempt should be made to deliver. I began the operation at four o'clock. Upon passing the hand, the pelvis was found perfectly empty, and at the anterior part of the abdomen, just beyond the symphisis pubis, I felt a hand of the fœtus, its fingers being toward my hand. I passed my hand, guided by the fœtal arm, till I reached the trunk, and then the feet, and gently brought them down. The turning was now accomplished, and an opiate given. Mrs. T. now rallied. Her stomach became quiet; pulse, &c., improved, and there was no more constitutional trouble than so grave a lesion should be accompanied by. This state of things continuing some days, she suddenly sunk on the fifth day and died.

Upon examination it was discovered that the rent had occurred, and extended from points corresponding to the superior and anterior spines of the ilia. It was a wide gaping fissure, so much so that you looked through it, directly across the neck, to its posterior face.

[Case CCLXXX.]—I have seen another case in which the rent was transverse of the collum uteri. This was a first labour, patient between thirty and forty years old. The labour was long, but in no sense a severe one. Rupture was attended by subsidence of pain, sinking and recession of the head of the fœtus. This last was not so entire as to prevent the use of the forceps. This woman died *seventeen* days after the rupture. I saw her because of symptoms indicating severe disease in the abdomen. For some days recovery was looked for. She sunk at last without any severe precursory trouble, and till late, especially, free from the ordinary signs of grave peritoneal or abdominal disease.

She was examined after death, and the evidences were strong of much more grave lesions than were indicated in the ordinary way during life. Adhesions had taken place extensively in the organs in and about the place. Abscesses were discovered in the place where adhesion was most marked. Rupture had taken place *directly across* the neck of the womb in its posterior face, and was about one and three-fourths inches in length. Contraction had taken place and explained the small extent occupied by the rent. Its edges were ragged, and gave no proof that restorative process had taken place.

[Case CCLXXXI.]—In one case of rupture death had occurred before I reached the house. The rent, as discovered by dissection, was *longitudinal*, of great extent, and involving the neck and vagina, a very usual complication. The womb was not at all contracted.

[Case CCLXXXII.]—A case occurred in a neighbouring town. The child was turned and brought away. Death occurred soon after. In this case the rent was of great extent, the hand passing freely into the cavity of the abdomen.

[Case CCLXXXIII.]—I attended a woman some years ago, and after the birth of the child, I had occasion to pass my hand into the womb to ascertain what caused retention of the placenta. I first reached a mass projecting from the womb, which I soon ascertained was not the placenta: and being guided by the cord reached the placenta, separated, and removed it. The woman did well. In her next labour, she employed another physician. The arm presented. Another physician was called in, and turning agreed on. This was done Soon after the woman sunk and died.

Upon examination, a large polypous tumour was found projecting from the os uteri, and a large rent of the womb, involving the vagina. I examined the womb after it was removed, and found it to be perfectly uncontracted, presenting a large organized bag, with a tear through much of its length. It is very probable that, in this case, the dragging of the child through the os uteri, partially filled as it was by the polypus, and the resistance of this last to the progress of the fœtus, probably led to the accident.

[Case CCLXXXIV.]—Case of circular polypus; polypus surrounding the os uteri. In this case the patient had suffered for some time from descent of the womb, so that it was external, and the tumour was thus distinctly diagnosed. The polypus sprung from the edge of the mouth of the womb, by a very thick base, and of singular firmness. She suffered much by menorrhagia, or uterine hemorrhage. She became pregnant, and when examined during labour, one of the *upper extremities* was found presenting. I was called to see her. She lived about thirty miles from Boston, and when I reached the address, I found the labour was over, the medical attendant having delivered by turning. The child was dead, and, from the separation of the skin everywhere, and much distension from gas, it was pretty clear it had been dead some hours. Two or three ruptures had occurred in the circumference of the polypus, one of them very deep, and which I carefully examined, extended into the mouth and neck of the womb. The other rents were less distinct. This woman recovered. It certainly was a case which, in its extreme complication and previous history, seemed to present the least prospect of recovery; still it did well.

The treatment was mainly resolved into such a use of opium as would positively prevent pain, and keep the bowels perfectly quiet, and this for days; such a use of calomel as would secure alterative effects, and limit inflammation as far as possible to such a degree of it as might be necessary for the establishment and continuance of the restorative process, and such an employment of the catheter as would supersede the natural functions of the bladder. The use of opium was suggested, by what is known of its beneficial effects in some cases of perforation of the intestines in typhoid fever, and from other causes; of calomel, from its supposed power to control inflammation, or to keep it within the demand. The result of the case, whatever may have been the therapeutic doctrines or agencies, was wholly satisfactory. The case was one of questionless rupture, and the patient recovered.

[Cases CCLXXXV., CCLXXXVI.]—Two cases have occurred, one of which came under my notice, and the post-mortuary appearances of both of which I have examined, which were of much interest, as showing how fatal may be the consequences of apparently very slight uterine lesions occurring in labour. In these cases the only uterine tissue which had given way was the peritoneum. In one of them much more extensively than in the other, and principally about the origin of one of the Fallopian tubes. The lesions consisted in fissures of the *peritoneum*, as if it had been cut through with a knife. This form of rupture, if such it can be called, has been described by the late Dr. Clarke, brother of Sir Charles Mansfield Clarke, so distinguished by his writings on the diseases of females. Dr. C. describes cases of sudden death after labour, preceded by symptoms closely resembling those of rupture, and in which no other lesion was discovered after death, than the peritoneal fissures referred to.

[Case CCLXXXVII.]—Two cases of rupture occurred in the practice of the same physician, and to which he called me in consultation. The first was a case of exceedingly easy labour. It was long and troublesome, but it was almost painless. Ergot was given to increase pain. Rupture happened without any warning, and was followed by its ordinary signs. The child was turned. Death took place a day or two after delivery.

[Case CCLXXXVIII.]—In the second of these cases, the labour was severe. The exceeding destitution of the patient made her case much more wretched than it might, under other circumstances, have been. The child was turned, in a state of hopeless exhaustion of the woman, and death soon took place.

[Cases CCLXXXIX., CCXC.]—I have met with two cases, in which rupture was limited to the *vagina*. In both of these, death occurred, and under circumstances similar to those which mark the other cases in this paper.

[Case CCXCI.]—A case occurred here five or six years ago, in which rupture happened without its accustomed precursors of severe pain, or local symptoms indicating disease of the womb. The woman was most unfavourably situated, being one of our most wretched, squalid Irish. Her labour proceeded without unusual violence, until it was noticed that the head, the presenting part, had receded, and was at length out of reach. Turning was resorted to soon after, or as soon as a consulting physician was found, and the child brought from the peritoneal cavity through the natural passages. There was no question of rupture, as the child was found lying among the intestines. The symptoms immediately produced by rupture, and those which followed, were strongly marked. Still she lived on. At length, when apparently doing well, she became dissatisfied with her regular medical attendants, dismissed them, and sent for some one else; and, notwithstanding the utter wretchedness of her condition, and severe privations, she perfectly recovered. She has had a child since, and did well.

[Case CCXCII]—The latest case to which I refer, is of recent date. Circumstances were deemed to make it necessary to apply the forceps, while the head was yet above the brim of the pelvis. The effort failed. The forceps were well applied, and all safe force used. The perforator was next resorted to, and then the crotchet. After as many as four hours of uninterrupted effort, the child was delivered. Very soon after, the symptoms of ruptured womb showed themselves. These were rapid pulse, cold, damp skin, restlessness, sinking. But a symptom most relied on, was the occurrence of a tympanitic enlargement of the abdomen, in which the distension was suddenly produced, and which soon became of great size. The skin seemed stretched to the utmost, so thin, in short, as to show that the distending air was very near to the surface. The woman died the morning following delivery. An examination was not permitted. I have no question of the accuracy of the diagnosis in this case, as the physicians in attendance had observed unequivocal examples of the uterine lesion under consideration.

Of the above, in *four* death occurred before delivery. In two after the opposition of the patient to any operation for her relief. In a third, the physician thought it not expedient to operate. In a fourth, the patient being conscious of coming death, asked that the removal of the child might be deferred till after that event.

In *two* cases dropsy of the head existed.

In *two* cases the placenta was retained, it being impossible to remove it until after death, in one, and until a short time before death, in the other. In both, the womb was found communicating with the peritoneal cavity, in its fundus—and in one in which the placenta had not been delivered, it was projecting from the womb into the cavity of the abdomen.

In *two* cases the rent was *transverse*. In one of these it was across the *anterior* part of the womb, corresponding to the brim of the pelvis; the woman living five days. In the other it was across the *posterior* face, the woman surviving seventeen days.

In *two* cases polypus existed. In both of them the *upper extremity presented*. In one the polypus arose from the inside of the organ by a pedicle. The child was turned; the woman died soon after, and an examination showed a longitudinal rent of the womb of great extent, involving the os uteri. In the other, the polypus was *circular*, surrounding the os uteri.

In this the child was turned, and recovery followed. The ruptures here, for there were more than one, involved the polypus and os uteri.

In *two* cases rupture was confined to the *peritoneum;* both fatal.

In *two* cases rupture limited to *vagina;* both fatal.

In *two* cases recovery."

The following is from a communication with which we have been favoured by the politeness of Prof. C. D. Meigs, of Philadelphia.

"I have met with a few cases of rupture of the womb in labour, all of which proved fatal within some twenty or thirty hours.

The cases that have fallen under my notice, have not been recorded by me, and I cannot, therefore, give you the particulars of them. I am aware that some of them, at least three, followed the ergotic contractions induced by the imprudent exhibition of secale cornutum.

[Case CCXCIII.]—In a case that occurred this spring, the gentleman administered the ergot at midnight, or a little later, and the child escaped into the peritoneum at about 2 A. M. Her fate was announced—but as she lingered longer than was expected, I was called at 7 P. M.

I proposed to perform gastrotomy; but as the child could be touched through the rent in the vagina and cervix, it was deemed unadvisable to execute this purpose. Whereupon I withdrew it, by means of my craniotomy forceps, after making perforation of the cranium. The woman was sensible, though pulseless all the while, and quite conscious of her dying state. The operation was most fatiguing to me, and painful and exhausting to her, as the child was very large, and the pelvis a very bad one, which had caused laborious labours before. She survived the extraction for some hours.

A post-mortem examination showed me, that it would be far more humane in all such cases to extract the child by a gastrotomy operation, as the least painful, and least mischievous. I bitterly regretted having changed my purpose, and am now fully resolved in all future cases of rupture and escape to open the abdomen. I admit that a woman might recover, the child being left unextracted, but such good fortune is never to be expected. A hasty and speedy removal of the child and secundines gives, in my opinion, a chance not greatly inferior to that in Cæsarean section."

The following case occurred in the practice of a friend in this city, by whom we were requested to see the patient soon after the occurrence of the accident.

[Case CCXCIV.]—*Dec.* 23d, 1846.—At 3 A.M., we first saw the patient. Her condition was as follows. She lay upon her back with the knees partially drawn up; countenance pale and denoting great anxiety; face and upper extremities bedewed with perspiration; the lower extremities cold; was almost insensible, and when aroused complained of pain and soreness in the abdomen; pulse exceedingly rapid; the abdomen very sensitive to pressure; and the distended bladder felt distinctly above the pubes.

The doctor stated that he was called to the patient between nine and ten o'clock the preceding evening. He was told that pains came on about midday, when a midwife was called in, who soon left, believing that labour had not commenced. Unfortunately she returned in the evening, and left indubitable evidences of her officiousness: the labia being greatly swollen and livid; and the poor patient assured the doctor that this woman had "pulled her almost to death."

At the time of the doctor's arrival, the pains were moderate and even, as he considered, of deficient force, seeming rather dilating than expulsory. The head was in the cavity of the pelvis, about entering the inferior strait; the brow presenting, and the outlet was somewhat diminished in its transverse diameter. The patient had been delivered one year before of a living child, by means of forceps. Pains being so moderate that no suspicion of any danger to the uterus could be excited, and the bones of the head being very movable, the doctor determined to trust awhile to the efforts of nature.

Under this condition of things, about a quarter past two o'clock, she suddenly complained of faintness, and at the same time expressed a belief that something had given way within her. Two or three feeble pains followed; vomiting ensued; the head retreated from the inferior strait, and she fell into complete collapse. Brandy was freely given her but rejected.

This was from one-half to three-fourths of an hour before our arrival. Notwithstanding the feeble character of the pains up to the time of the accident, there could be no doubt that rupture of the uterus had taken place. It was agreed to continue administering brandy freely for awhile in order if possible to bring on reaction. A gum catheter was introduced, and about a pint and a half of urine drawn off, of the colour of strong coffee; an attempt to introduce the silver catheter some time previous, had failed. A hard tumour was now felt in the right side of the abdomen just below the margin of the ribs, presenting about the size and feel of a contracted uterus after delivery; below it nothing could be distinctly felt through the abdominal walls, the whole abdomen being, in fact, too sensitive to permit of any accurate examination. During twenty or thirty minutes she took over half a pint of brandy which she retained; under its influence, intelligence returned; the countenance brightened; and she had considerable strength to assist in changing her position. There was not, however, a corresponding improvement of the pulse, and it was agreed that the only chance for herself or child was immediate delivery, though little expectation could be entertained of saving either.

The space between the tuberosities of the ischia appeared to be less than three and a half inches. The head rested on the brim of the pelvis, with its long diameter corresponding to the transverse diameter of the superior strait, and movable. Some blood flowed from the vagina when the head was disturbed. Version was contra-indicated by the contracted outlet; the choice was between the perforator and forceps, and though no attempt was made to ascertain if the child were alive, because of the difficulty of distinguishing the pulsations of its heart from those of the iliac arteries of the mother, which were now as frequent as those of the fœtus; yet in order to give it a chance, if alive, the forceps were selected. The blades were introduced without difficulty, and just being locked, when it became apparent that the poor creature was sinking. The forceps were accordingly withdrawn, the patient replaced upon the bed, and in a few minutes she expired.

Post-mortem.—Four hours after death whole surface of the body blanched. Abdomen very tense and distended; contracted fundus felt in the right side, and could be grasped in the hand; in the left hypochondrium a limb could be felt on deep pressure. Upon laying open the peritoneal cavity liquid blood gushed out, and from three to four quarts were removed. The fœtus lay in the left side of the abdomen, the head only remaining within the uterine cavity, the lacerated edges contracted around the neck. The placenta was lying in the peritoneal cavity, a small portion only remaining still attached to the fundus uteri. The fundus and the portion of the body not surrounding the head of the fœtus was firmly contracted. She had evidently perished from hemorrhage.

The rent was irregular and ragged, involving the posterior and lateral aspect of the cervix, running up into the body of the womb and down into the vagina. The womb was apparently somewhat thinned at the place of rupture.

Professor Bedford, of the University of New York, has kindly furnished us with the six following cases, additional to those already quoted from his valuable additions to *Chailly's Midwifery.*

[Case CCXCV.] *Oct.* 10, 1844.—Mrs. H., of Williamsburgh, was taken in labour with her fourth child. When labour commenced she sent for a midwife; shoulder presentation; arm came down; midwife made violent traction on it. Fourteen hours after labour began I was sent for; found the patient much prostrated, with more or less constant vomiting; child undelivered; mouth of womb relaxed. I turned, and delivered her of a living son. Neck of the uterus had been ruptured by rude manipulations of the midwife. Patient recovered after four weeks extreme feebleness.

[Case CCXCVI.] *Dec.* 9, 1844.—Dr. Burtsell sent for me to see Mrs. A., who had been in labour four days. Before Dr. B. had arrived, a physician in attendance had administered ergot freely. The pelvis, though not deformed, was small. Vomiting and prostration; head at the inferior strait. The woman's strength failing, I applied the forceps, and delivered her of a living son. After-birth was retained; introduced the hand to remove it, and found a small rupture in the anterior surface of the womb just above the cervix. Patient recovered in two weeks without one untoward symptom, except great weakness.

[Case CCXCVII.] *June* 14, 1844.—I visited a patient of Dr. Ostrom, in New Jersey; patient in labour thirty-seven hours when I first saw her. Pains had been violent, but no progress in the labour, except the mouth of the uterus was dilated to the extent of a four shilling piece. The patient possessed an extremely rigid fibre; ordered bleeding to twenty ounces, followed by a solution of tartar emetic. Pains continued vigorous; mouth of the womb dilated a fraction more, and became softer; no further progress in delivery after six hours. During a violent pain, something was heard to *give way;* this was followed by vomiting and great prostration, with cold extremities. I suggested the propriety of *turning*, and performed the operation, and delivered the patient of a *living* son. The womb was ruptured on the left of the cervix, and the patient survived twenty-four hours.

[Case CCXCVIII.] *Jan.* 18, 1846.—Mrs. N., in the ninth month of pregnancy, was struck on the abdomen with a stone. Labour came on, with vomiting and sickness; cold extremities, &c. &c. There was rupture of the womb. She was delivered naturally in four hours of her third child. Died in twelve hours from the effects of rupture.

[Case CCXCIX.] *March* 3, 1845.—Dr. Reiley requested me to see Mrs B. with him. She had been in labour ten hours when I saw her; no progress notwithstanding violent contractions. On examination, found the cervix in a state of scirrhus, and rupture at the fundus. The child had partly escaped into the abdomen. The woman died three hours after my arrival. The abdomen was opened, and the child removed. If I had arrived in time, I should have laid open the mouth of the uterus with a bistoury.

[Case CCC.] *Jan.* 16, 1847.—I was requested by Dr. Thomas to visit a lady in West Chester, who had been in labour twenty hours. The arm protruded through the vagina, and had been in this situation for six hours. Patient had suffered most acutely from violent and increasing pain. One hour before I had arrived she was seized with great prostration and vomiting; there was rupture of the cervix; pelvis small, though not deformed. I turned and delivered her of a living daughter. The mother recovered in two weeks.

"These six cases, with the five mentioned in my note in Chailly, eleven in all, are the cases I have met with in my practice. Of these eleven, in three the mother recovered, and four children were delivered alive. You will please remember that in every case I was called in consultation."

Dr. Wm. R. Wagstaff, of New York, late Resident Physician of the Lying-in Asylum, during a practice of eight years, in which he has attended nearly twelve hundred patients in their confinements, has had three cases of rupture of the womb. The first is Case CCIII. of our series.

[Case CCCI.]—"The second was in a patient of Dr. Ira B. Blakeman. She was a strong, healthy Irish woman, who had given birth to three full-time living children, without any preternatural difficulty. In this labour, her fourth, the doctor was summoned in the evening, and upon examination, found a natural vertex presentation, parts dilatable, pains recurring at proper intervals, and not unusually forcible; in short, all the evidences of an easy, natural labour. The membranes gave way soon after the os was fully dilated, and as the head was engaging in the superior strait; in half an hour after their rupture, the head being in the inferior strait and pressing on the perineum, during a pain she exclaimed that something had snapped in her side." The pain instantly ceased, and there was no recurrence of contractions of the uterus afterwards.

I was immediately summoned by Dr. B, and arrived about an hour after the accident; she was then complaining of a continuous lancinating pain in the epigastric region, with constant vomiting. I applied the forceps to the head, and delivered at once without difficulty. The child was a male, weighing about seven pounds [and dead]. No contraction followed the delivery of the child, and upon passing my hand into the cavity of the uterus for the purpose of exciting contractions, and effecting the delivery of the placenta, I found a large quantity of intestines protruding into it through a laceration of considerahle extent on the anterior side near the fundus. No contraction of the uterus ever took place, nor could reaction be established, although stimulants were freely administered. She died fourteen hours after delivery. A post-mortem examination was denied.

[Case CCCII.]—In the early part of this summer, I was called to attend Mrs. C., a strong, healthy woman, in labour with her fourth child. Her first had been born without any artificial assistance, after a protracted labour of five days. Her second was delivered by instruments. Her third I had delivered with instruments thirteen months previously, at the request of her attending physician, on account of inertia of the uterus. When summoned to attend her in her last confinement, I found upon examination a vertex presentation, os uteri dilated fully, parts flaccid, pains forcible, but not unusually violent, and everything progressing naturally. In a short time the membranes ruptured spontaneously, and in a half hour afterwards, the head having reached the inferior strait, she experienced a sensation of something giving way during a pain, which immediately ceased. Having waited for fifteen minutes, and observing no recurrence of the propulsive efforts of the uterus, and being alarmed by her continuous complaint of a sharp lancinating pain in the epigastric region, I made examination *per vaginam*, and found that it was impossible to reach the child, and that the os uteri was firmly contracted. On passing my hand over the abdomen I distinctly felt the fœtus beneath its parietes, and low down, just under the arch of the pubes, a firm, hard ball, which I at once recognized as the contracted uterus. On account of the difficulty always attendant upon obtaining a medical consultation in the night, it was four hours before the operation of gastrotomy was performed. In the presence of Drs. Powers, Whittaker, and several others, I opened the abdomen through the *linea alba*, and found the child and secundines in the cavity of the peritoneum, together with a large quantity of blood and water, all of which was carefully removed, and the uterus firmly contracted, and down in the cavity of the pelvis. The child was a male, weighing nine pounds, and dead. The lips of the wound were brought in apposition and retained by six sutures. It was found necessary to administer stimulants freely during the operation, and in fact during the whole residue of her life. She never so rallied as to admit of the abstraction of blood, nor was it thought advisable to apply blisters. Twelve hours after delivery she commenced discharging from her stomach a large quantity of dark green-coloured fluid, mixed with such nourishment as had been taken, amounting to more than a gallon in twenty-four hours. and this she continued up to the time of her death, which took place six days after the operation. Her bowels were daily evacuated by the excitement of enema. Ice was kept constantly applied over the abdomen. The upper part of the wound healed by the first intention, the lower part remained open, and through it there exuded continuously a greater or less quantity of bloody fluid. I regret that no examination, *post-mortem*, could be obtained.

Case CCCIII.—A specimen of rupture of the anterior wall of the uterus and of the bladder, by the forcible introduction of the forceps.—*Museum of New York Hospital, presented by Dr. Watson.*

In the next number of this Journal we propose to consider the symptoms of rupture of the uterus, the cause, both remote and proximate, of this accident, its pathology, and the most successful mode of managing it, as deduced from the cases we have collected.

REVIEWS.

Art. XII.—*A System of Surgery.* By J. M. Chelius, Doctor of Medicine and Surgery, Public Professor of General and Ophthalmic Surgery, Director of the Chirurgical and Ophthalmic Clinic in the University of Heidelberg, &c. *Translated from the German, and accompanied with Additional Notes and Observations.* By John F. South, Late Professor of Surgery to the Royal College of Surgeons of England, and one of the Surgeons to St. Thomas's Hospital. 3 vols. 8vo. pp: 2148. Philadelphia, 1847.

New Elements of Operative Surgery. By Alf. A. L. M. Velpeau, Professor of Surgical Clinique of the Faculty of Medicine of Paris, Surgeon of the Hospital of La Charité, Member of the Royal Academy of Medicine, of the Institute, &c. Carefully Revised, entirely Remodeled and Augmented with a *Treatise on Minor Surgery.* Illustrated by over 300 Engravings, incorporated with the text: accompanied with an Atlas in quarto of 22 Plates, representing the Principal Operative Processes, Surgical Instruments, &c. First American, from the last Paris Edition. Translated, by P. S. Townsend, M. D., Late Physician to the Seamen's Retreat, Staten Island, New York. Augmented by the addition of several hundred pages of entirely New Matter, comprising all the Late Improvements and Discoveries in Surgery, in America and Europe, up to the present time. Under the supervision of, and with Notes and Observations by Valentine Mott, M.D., Professor of the Operations of Surgery, with Surgical and Pathological Anatomy, in the University of New York, Foreign Associate of the Académie Royale de Médecine of Paris, of that of Berlin, Brussels, Athens, &c. In 3 vols. 8vo: pp. 3180. New York, 1845–47.

The two works which we have placed in association at the head of this article, have some striking features in common. They are both recent translations. They are both systematic compilations of great merit. They both assume to furnish a full-length portrait of the Surgery of the day; one of them having special reference to Operative Surgery; the other, without excluding this, giving more particular consideration to Surgical Pathology. Both works, in the original, stand at the head of their class; the one, in the surgical literature of France; the other, in that of Germany. They have both received, in the course of translation, a strongly marked extrinsic impress; the one, from the Surgery of America, or at least from an American Surgeon; the other, from the Surgery of Great Britain. They have both been notably enlarged; and as now presented to us, they both appear to have lost something of their primitive unity of purpose, and to have been diverted in some degree from the main purpose for which they were originally written.

Every author has, of course, the right to present his own productions to the public in such a shape as he thinks best calculated to give clear expression to his facts, or to subserve the ends of science. But we have some doubts as to how far the editor, translator, or commentator of another man's works, should be indulged in altering their general scope. In books, as in pictures, statues, and buildings, there should be an artistic finish, a mutual relation and dependence of parts; with some rising into full relief, and others receding into shade, in just accordance with their relative importance. This rule, we admit, is far from being generally observed by our professional writers; in some of whose productions it would puzzle Longinus himself to find the slightest attention paid to any other rules of composition, than such as relate to the mere grammatical construction of sentences; and even these rules are too often disregarded. But where an author has evinced much skill in the arrangement of his materials, marked out his ground, reared his superstructure, and given to each portion of his performance its due consideration, it becomes the part of the critic, as well as of the public, to protect him against the ruthless innovations of remodelers, who, without perceiving the symmetrical construction of his whole work, would engraft notes and paragraphs and opinions upon it, with as little compunction or regard to relevancy, as if they were compiling for a daily newspaper. The productions of a useful writer are a sort of public property, which no man has a right to convert into a clothes horse upon which to suspend his wet sheets and washed linen.

We do not throw out these thoughts with more special reference to the works now before us, than to some others that are popular in our profession. The notes, comments, and additional materials, that have been incorporated with the work of M. Velpeau, as well as with that of Chelius, may, in some respects, enhance the value of the original. And the editors, in both instances, have given plausible reasons for the liberties they have taken. Thus, says Dr. Mott, in a letter addressed to M. Velpeau, and in his own peculiar manner:—

> "I have taken thus the liberty to enter my name as a *compagnon de voyage* with you, upon the great high-road of the science, where it has been so long our cherished pride, fortune, and pleasure to travel. Because I felt that in associating my labours with those which have received the approbation of your judgment, and which your genius and untiring industry have wrought out in your estimable work, as an enduring monument to your fame, I might find an appropriate place and guarantee for indulging the ambition that I, like others, must naturally have of seeing legitimately transmitted, through an orthodox and approved organ, for the judgment of an impartial posterity, an authentic account at least (if only at best but an abrégé one) of my *stewardship* also in the great field of surgical science. This, so far as concerns myself, (and independent of perhaps paramount considerations, to give wider diffusion upon this continent to your great and useful work.) I felt admonished by the time of life at which I have arrived, to be due as well to myself and my own reputation, as to my country and profession.
>
> "As such, then, my dear sir, I have ventured thus, while life is so short and art so long, to ask for myself a niche in the great edifice of surgical facts and truths of which you are the constructor and owner. I have to ask of you the privilege that I may be allowed within this storehouse, containing so much of the treasures of our science, to make safe deposit and registration of the detached fragments of the scaffolding at least, of that extended work of my own on Operative Surgery, which, as you are aware, I have for so long a time meditated, and of which these offerings must for the present be received as the pledge."—(Vol. I. pp. 10, 11.)

The first two volumes of M. Velpeau's Surgery, as translated by Dr. P. S. Townsend, of New York, with notes, &c., by Dr. Mott, have been for some time before the public; the last volume has appeared within the past few months. The work, from its size alone, has been one of great labour. As it now stands, it occupies three overgrown octavo volumes, the first of which contains 914 pages; the second, 1190; and the third, not fewer than 1175 pages.

To one at all familiar with the original, as it came from its author's hands, it might have appeared already sufficiently circumstantial and voluminous. The advancements in the art of surgery, since its publication, the restless desire for improvements, and the public taste for novelties, would probably have asked of the author himself, had he been about to prepare a third edition of his book, some notice of newly devised operations, or some new modifications of old ones; and the medical public would doubtless have accepted with good grace, as much as this, or even somewhat more, from the editors of the present translation. But they have ventured far beyond this. "No pent up Utica contracts their powers." And if they have not "the whole continent" to themselves, they occupy at least a very considerable portion of it. "The entire *new matter* prepared for this edition," to use the words of Dr. Townsend, "will make, altogether, in the body of the work, some 1200 to 1500 pages."

Dr. Mott's contributions are; 1st, a short preface to the first volume; 2d, the republication of most, if not the whole, of his more important cases and operations in detail, as taken from the several medical periodicals in which they had originally been presented to the public; 3d, a chapter of about a hundred pages on the management of aneurisms and kindred topics; 4th, a short paper on rigidity of the lower jaw, which is the only contribution from his own pen that we have met with in the third volume. But, by the hand of his associate, Dr. Townsend, he has caused to be inserted in this, as in the other two volumes, many detached notes and comments on the text, with occasional reports of cases. So that in the whole work, without attempting great precision, we may estimate Dr. Mott's *addenda* at about 200 pages.

Dr. Townsend's share of the 1500 pages of new matter is not so easily identified. Besides innumerable shorter passages, paragraphs, and reports of cases and operations, collected from his friends, or drawn from his own resources, or condensed from the miscellaneous papers of M. Velpeau, his principal contributions to the first volume, are: 1st, a preface; 2d, appendices on strabismus, tenotomy, myotomy, &c., occupying some thirty pages or more; and, 3d, a concluding American appendix of nearly ninety pages, mostly devoted to anaplastic procedures. In the second volume, besides a preface, he has inserted a miscellaneous supplement of eighty pages, with notes and observations without number. In the last volume we find, also, another preface from his pen, with a multiplicity of notes dispersed throughout the text. In short, his task has been an arduous one. He has had to act many parts in this performance: 1st, as translator, in which capacity he has succeeded to the satisfaction of his associate; 2d, as amanuensis to Dr. Mott, in which he has also performed a useful part; 3d, as compiler and commentator, in which he has shown but little discretion, no system, and an insufficient acquaintance with surgery, to prevent him from mistaking trifles for affairs of moment. His fourth part has been that of panegyrist; here "Richard is himself again." We cannot repress the temptation of favouring our readers with one or two of his boldest strokes in this line.

"I feel constrained also to add, that the accomplishment of this part of my labour is one to which considerations of love of country add in my mind no slight degree of value. For young as our country is in history, and filled as its annals are with great names, both in the heroic period of its settlement, and in its subsequent ages of military renown, national emancipation, and diffusion of the arts, there is in my humble judgment no name that adorns those annals either in the battle field, or in the councils of government, or in its diplomacy, that has added more sterling reputation and abiding lustre to the intrinsic glory and future fame of America than that of VALENTINE MOTT, unaided and ungilded though that name may be by the insignia of office or of power.

"For one who in his duties as a Christian and a man of science, has done so much personally in the active field of benevolence, and struck out such noble discoveries and new paths to enable us more effectually to alleviate the miseries of our fellow creatures, there will be a balm, as we believe, that will rest upon his memory in after time, less dazzling perhaps, but certainly full as enduring, and far more endearing to future generations, than any that the most ardent homage of patriotism could feel inspired with, for the glare of the most brilliant civic or military exploits."—(Vol. II. p. 5.)

A portion of the following will be found quite as characteristic as the foregoing:—

"To our countryman, Dr. Brashear, who was a pupil of the eminent Dr. Ridgeley, of the continental army of the Revolutionary war, and also a student at the University of Philadelphia, under Dr. Rush and other famous men of that day, are we indebted, as is now ascertained, for the *first* operation, or amputation of the thigh at the hip joint or *coxo femoral articulation* ever performed in America, and which was followed with complete success. This occurred as early as the year 1806, *only three years* after the illustrious Larrey had revived and perfected this operation in the campaigns of Napoleon. (See text of M. Velpeau on this subject, p. 637, &c. in Vol. II. of this work.)

"With that self-neglect of one's own rights, that is ever a prominent characteristic of the diffidence of men of genius, and from his having early in life withdrawn from active practice, Dr. Brashear had never published this case. Dr. Mott, therefore, as is seen in his case of coxo-femoral disarticulation in Vol. II. of this work, had hitherto supposed that he was the surgeon who in this country had first performed this important operation. With a magnanimity which ever belongs to him, and which we trust will serve as an emphatic lesson to those who in their malignity would rob and calumniate both the dead and the living, Dr. Mott cheerfully abstracts the plume from his own honoured brows, that can spare many and much more like this, and affixes it upon the name of the gentleman to whom it rightly belongs."—(Vol. III. p. iv.)

M. Velpeau's portion of the work before us, is already too well known to require of us either comment or analysis. Few books on operative surgery have ever acquired—none, perhaps, have ever deserved, a greater reputation, than the one upon which the present translation is founded. Without claiming to be complete in all its parts, and without assuming to assign the exact measure of credit to every individual among the host of contributors to the general advancement of modern surgery, it nevertheless comes as nearly up to this, as the extent and nature of the researches involved in the task, the French spirit of nationality, and M. Velpeau's rather prurient desire to stand forth as an extensive innovator and improver himself, could reasonably be expected to allow. His work is emphatically the great representative of the operative-surgery of the present century, as that of Heister was of the century that is past. It will, probably, in future editions, be for the most part disencumbered from the incrustations of the present version; and once again restored to its fair proportions, it must continue, for time to come, to occupy its present position as a book of frequent reference.

We must now notice, as briefly as possible, the arrangement of the materials composing these volumes.

M. Velpeau has distributed his materials under four great divisions or titles; the first, embracing operations in general; the second, minor surgery; the third, general operations, or such as apply to different parts of the body in common; the fourth, special operations, or such as apply only to particular regions or organs.

TITLE FIRST, treats under distinct heads; 1, of classification; 2, the nature of operations; 3, the care required in these; 4, the conditions necessary to them; and 5, the consequences resulting from them.

TITLE SECOND, is divided into two parts; 1, dressing and bandaging, which is subdivided into eleven chapters; and 2, minor operations, which is again subdivided into six chapters.

TITLE THIRD, at which, properly speaking, the great business of operative surgery begins, is divided into two parts; the first, referring to elementary operations; and the second, to complex operations. This last, extending over the greater part of the whole work, is subdivided into twelve sections, occupying a good portion of the first, the whole of the second, and a part of the third volume.

The *first section* is occupied with operations upon the cuticular surface.

The *second* treats of operations for deformities, and is subdivided into five chapters:—1. Morbid cicatrices; 2. Subcutaneous bridles; 3. Deformities from contracted tendons and muscles; 4. Deformities from alterations in ligaments and aponeuroses; and 5. Deformities from alterations in the skeleton.

The *third* section is devoted to anaplasty, the details of which are scattered over twenty chapters.

The *fourth* opens with the second volume, and is occupied with operations upon the arteries in general. It is subdivided into three chapters:—1. Anatomical remarks; 2. Spontaneous termination of lesions of arteries; 3. Treatment of arterial lesions.

Section *fifth*, treats of operations on particular arteries, and is subdivided into four chapters.

Section *sixth*, operations upon the veins, is mainly devoted to the management of varices.

Section *seventh*, referring to operations on the lymphatics, is disposed of in a single paragraph.

Section *eighth*, operations on the nerves, is also a short section, and divided into two chapters:—1. Operations on the nerves of the head and neck; 2. On the nerves of the limbs.

Section *ninth*, treats of amputations, and is subdivided into part first, amputations in general; and part second, amputations in particular.

Section *tenth*, excision of bones, is divided into part first, excision in the continuity of bones; and part second, excision of the articulations.

Section *eleven*, trephining, treats in three chapters; 1, Of trephining the head; 2. The bones of the trunk; and 3. Those of the limbs.

Section *twelfth*, tumours, is very voluminous, and subdivided into thirteen chapters, which we need not stop to specify.

TITLE FOURTH, on special operations, occupies the greater portion of the last volume. It is divided into nine parts, the most of which are again subdivided into chapters. *Part first*, treats of operations about the head and face. *Part second*, operations about the neck. The *third* treats of operations about the chest; the *fourth*, about the abdomen; the *fifth*, treats of hernia; the *sixth*, of operations for diseases of the genital organs; the *seventh*, of calculi; the *eighth*, of operations for diseases of the urethra; the *ninth*, of operations for diseases of the rectum.

With this general enumeration of subjects, we must, for the present, leave these volumes, and turn to those of Chelius; reserving what we have yet to offer in regard to the contents of the first of these works, until we are prepared to speak of them in connection with the contents of the second.

The manual of Professor Chelius has long been a favourite text-book of surgery in the German schools. It was first presented to the public in 1821. It has undergone six editions under the immediate supervision of its author; and, by the favour of translations, it has been the means of diffusing some general notion of German surgery, and of German surgical writers, throughout the rest of Europe.

It appears never to have been the design of Chelius to prepare a complete system of surgery; his object being, as he tells us in the preface to his first edition, to furnish for the use of his pupils, a short and clear description of surgical diseases, and of the modes of treating these, in connection with a well-arranged and thorough system of surgical bibliography. And although his work since its first appearance has undergone many modifications and improvements, in keeping with the progress of surgical knowledge, yet, up to the last edition of the original, we find it still preserving its primitive character as a manual. But in some of the translations, particularly in the French version by M. Pigne, and in the present English version by Mr. South, it has in some degree lost this character, and by their numerous comments and annotations, it has, at length, grown into a voluminous system.

M. Pigne, in his version of the fourth edition, has incorporated with the text much of the surgery of Dupuytren and of other masters of the French school, and the author himself, in his later editions, has adopted some part of these materials. Mr. South again, in his version of the sixth edition, has still further augmented the work with the results of his own extensive observation, with selections from the records of British Surgery, and with no small amount of useful and well-digested matter from the writers and practitioners of the present day, both of Great Britain and America. Insomuch that the work, as he has now presented it to us, might as well have been entitled "South's Commentaries on the Elements of Surgery," as a "System of Surgery," by Chelius himself.

It is not our purpose, after what we have already said, to express any opinion on the course which Mr. South has marked out for himself in thus materially altering the general scope and character of the original work. He must be the exponent of his own views on this point.

> "Had I confined myself to a mere translation of my original, many important points must have been omitted, and the object for which I undertook the publication of the handbook could not have been attained. I was therefore obliged to resort to annotations and comments, the result of my own experience and reading, for the purpose of filling up and enlarging the author's short notices, so as to render them more generally useful both to the student and the practitioner. In doing this I have far exceeded the limits I had originally proposed to myself, but the subject is so important, and fresh matter was so constantly at hand, that my great difficulty has been in restricting my work within present bounds.
>
> "I shall be charged, I fear, with having buried my author beneath a mass of notes and comments. They are indeed numerous, and they might occasionally have been made shorter, had I condensed, in my own words, the opinions of the authors I have cited. To this practice, however, though not uncommon, I am utterly opposed. The meaning of a writer ought to be best set forth in his own words, and if others attempt to convey his meaning briefly, they not unfrequently fail to declare his opinions, or they altogether misrepresent them. I have, there-

fore, with but few and unimportant exceptions, quoted the statements of authors in their original words. I have also, as far as possible, endeavoured to award to the originators of new modes of practice, their just meed of credit; and if, as may occasionally have happened, I have passed by unnoticed any of the leading surgical writers of the British schools, I hope on a future opportunity to repair my seeming inattention.—(Vol. I. pp. 9, 10.)

Before proceeding to a more intimate acquaintance with the contents of these volumes, it may be well to observe, that the principal text is regularly divided, for the sake of easy reference, as well as for the saving of words, into a series of distinctly numbered paragraphs; and that the less important notes and observations of the author, in common with the additional materials furnished by the translator, are appended to the paragraphs to which they respectively relate, and are printed in smaller type, so that the body of the work may be read either continuously, or in connection with the annotations, as may best serve the purpose of the early student, or that of the inquiring practitioner.

But the peculiar feature of this work, and that which adds most to its value as a book of reference, is its copious surgical bibliography. The author has placed at the head of every chapter and other subdivision, and elsewhere as occasion seemed to require, a list of the most important books that have been published upon the subject, giving not only the title and date of publication of such as he may himself have had occasion to consult, but also of such others as he had any knowledge of; so as to make his series of references as full as possible. Mr. South does not appear to have followed him very assiduously in this department of his labours. He has failed to mention some well-known British writers. But the American editor, Dr. Norris, has very judiciously in great part made up for this deficiency. For, without attempting further to encumber the work with additional annotations, he has supplied numerous references to such of the surgical writers of Great Britain and America, as appeared to him worthy of notice, and to have been overlooked by the author and translator.

Professor Chelius very justly observes, that the distinction between external and internal diseases which has been taken as the ground of difference between medicine and surgery, is entirely without meaning. He would attempt to discover some general characteristics of disease, upon which to found a nosological distinction between these two great branches of the healing art. In so doing, he would exclude from surgery the whole group of functional disorders; and include in it only *such of the organic diseases as have their seat in parts accessible to our organs of touch, or such as allow of the employment of mechanical means for their cure.*

We shall not stop to examine, very minutely, this new ground of difference between medicine and surgery. The author himself is not strenuous in his observance of it. He breaks through it, at the very onset, in treating of inflammation. But we may remark in passing, that it is scarcely more definite than the one which he repudiates; and it has the additional disadvantage of excluding from the province of surgery, certain diseases of a functional character, such as superficial neuralgias, spasmodic affections of the muscles, constitutional disturbances, originating in external diseases, and other affections, which, by common consent, are assigned to the surgeon. The author, indeed, does not neglect to notice the whole of these; but in following out his plan, he alludes to them, for the most part, only in an incidental manner, and not so directly as he might have done, had he not felt himself cramped by his attempt at arranging surgical diseases in accordance with what he considers their internal and actual agreement.

Surgical diseases, he observes, may depend, "1, *on the disturbance of organic connection;* 2, *on the unnatural union of parts;* 3, *on the presence of foreign bodies;* 4, *on the degeneration of organic parts, or on the production of new structures;* 5, *on the entire loss;* and 6, *on the superfluity of organic parts.*"

Starting with this view, as furnishing the fundamental ground for his nosological arrangement, and admitting inflammation, as it were by necessity, at the head of these, he arranges them under the eight following divisions, viz:

I. Division.—*Of inflammation.*

1. *Of inflammation in general.*
2. *Of some peculiar kinds of inflammation.*
   a. Of erysipelas; *b.* Of burns; *c.* Of frost-bite; *d.* Of boils; *e.* Of carbuncle.
3. *Of inflammation in some special organs.*
   a. Of inflammation of the tonsils; *b.* Of the parotid gland; *c.* Of the breasts; *d.* Of the urethra; *e.* Of the testicle; *f.* Of the muscles of the loins; *g.* Of the nail joints; *h.* Of the joints, viz.
   a. of the synovial membrane; b. of the cartilages; c. of the joint-ends of the bones, viz., *aa.* in the hip-joint; *bb.* in the shoulder-joint; *cc.* in the knee-joint; and so on.

II. Division.—*Diseases which consist in a disturbance of physical connection.*

I. *Fresh solutions of continuity.*
   A. Wounds; B. Fractures.
II. *Old solutions.*
   A. Which do not suppurate, viz.
      a. False joints; *b.* Hare-lip; *c.* Cleft in the soft palate; *d.* Old rupture of the female perineum.
      B. Which do suppurate, viz.
i. *Ulcers.*
   1. In general.
   2. In particular.
      a. Atonic; *b.* Scorbutic; *c.* Scrofulous; *d.* Gouty; *e.* Impetiginous; *f.* Venereal; *g.* Bony ulcers or caries.
ii. *Fistulas.*
   a. Salivary fistula; *b.* Biliary fistula; *c.* Fæcal fistula and artificial anus; *d.* Anal fistula; *e.* Urinary fistula.
III. *Solutions of continuity by changed position of parts.*
   1. Dislocations; 2. Ruptures; 3. Prolapses; 4. Distortions.
IV. *Solutions of continuity by unnatural distension.*
   1. In the arteries, aneurisms; 2. In the veins, varices; 3. In the capillary-vascular system, teleangiectasis.

III. Division.—*Diseases dependent on the unnatural adhesion of parts.*

1. Anchylosis of the joint-ends of bones; 2. Growing together and narrowing of the aperture of the nostrils; 3. Unnatural adhesion of the tongue; 4. Adhesion of the gums to the cheeks; 5. Narrowing of the œsophagus; 6. Closing and narrowing of the rectum; 7. Growing together and narrowing of the prepuce; 8. Narrowing and closing of the urethra; 9. Closing and narrowing of the vagina and of the mouth of the womb.

IV. Division.—*Foreign bodies.*

1. *Foreign bodies introduced externally into our organism.*
   a. into the nose; *b.* into the mouth; *c.* into the gullet and intestinal canal; *d.* into the wind-pipe.
2. *Foreign bodies formed in our organism by the retention of natural products.*
   A. Retentions in their proper cavities and receptacles.

a. Ranula; *b.* Retention of urine; *c.* Retention of the fœtus in the womb or in the cavity of the belly (Cæsarean operation, section of the pubic symphysis, section of the belly).

B. Extravasation external to the proper cavities or receptacles.

a. Blood swellings on the heads of new-born children; *b.* Hæmatocele; *c.* Collections of blood in joints.

3. *Foreign bodies resulting from the accumulation of unnatural secreted fluids.*

a. Lymphatic swellings; *b.* Dropsy of joints; *c.* Dropsy of the bursæ mucosæ; *d.* Water in the head, spina bifida; *e.* Water in the chest and empyema; *f.* Dropsy of the pericardium; *g.* Dropsy of the belly; *h.* Dropsy of the ovary; *i.* Hydrocele.

4. *Foreign bodies produced from the concretion of secreted fluids.*

V. Division.—*Diseases which consist in the degeneration of organic parts, or in the production of new structures.*

1. Enlargement of the tongue; 2. Bronchocele; 3. Enlarged clitoris; 4. Warts; 5. Bunions; 6. Horny growths; 7. Bony growths; 8. Fungus of the dura mater; 9. Fatty swellings; 10. Encysted swellings; 11. Cartilaginous bodies in joints; 12. Sarcoma; 13. Medullary fungus; 14. Polypus; 15. Cancer.

VI. Division.—*Loss of organic parts.*

1. *Organic replacement of already lost parts,* especially of the face, according to the Tagliacozian and Indian methods.
2. *Mechanical replacement:* Application of artificial limbs, and so on.

VII. Division.—*Superfluity of organic parts.*

VIII. Division.—*Display of the elementary management of surgical operations.*

General surgical operations: Bleeding, cupping, application of issues, introduction of setons, amputations, resections, and so on.—(Vol. I. pp. 16, 17.)

We shall not stop to criticise the foregoing classification. With some good features in its favour, it is, nevertheless, open to serious objections. But it has enabled the author to speak either directly or incidentally of almost every surgical disorder; and the inconveniences attending it are, in a great measure, obviated by a copious analytical index. It will be observed that our author nowhere treats of the diseases of the eye or ear. The omission is not an accidental one; but as these diseases have attained to great importance, he is disposed to think that they may be more conveniently spoken of apart, and assigned to special essayists.

Thas far, the introduction. The next, come some hasty notes on the history of surgery; after which, follows a list of about twelve pages of surgical authorities, in which we find enumerated most of the standard works in the several departments of surgical literature.

The first main division of the work opens at page 32, volume first; and as shown by the general arrangement of subjects above cited, it is devoted to the consideration of inflammation in general, to some of the special modifications of inflammation, and to some of its more important local manifestations. The second division opens at page 317, and, as above shown, it embraces a very extensive range of subjects. It occupies the remaining portion of the first volume, and the whole of the second volume of the present edition. The third division commences with the third volume, and occupies 92 pages. The fourth division, treating of foreign bodies, of retained secretions, &c., occupies the next 286 pages. The fifth, devoted to the consideration of hypertrophy, tumours, and other morbid growths, occupies nearly 200 pages. The sixth, on the loss of organic parts, occupies only 20 pages. The seventh is summed up in two pages; while the eighth, or last, which is devoted to elementary surgical operations, and to the modes of operating for the cure of certain affections, not included in either of the foregoing divisions, occupies 170 pages. The index occupies the remaining 172 pages of this volume.

To enter into a minute examination of this vast amount of materials, or to analyze the 2856 distinct paragraphs, that constitute the body of the work, without speaking of the unnumbered and almost innumerable notes and comments that are appended to these, would carry us far beyond the limits of an ordinary review; nor is it necessary, in a treatise of this sort, that we should be thus minute in the exposition of its contents. It may suffice to refer to a few of the more prominent topics, to furnish a general view of the spirit and temper of the rest, to illustrate the author's, as well as the translator's, manner; and to offer a few passing criticisms on such points as may appear open to objection.

And first, of a form of disease which, to ourselves, appears somewhat new; and to which our author alludes, in connection with the products and results of inflammation, under the head of *lymphatic swellings.*

"Beinl, Rust, and others, consider the nature of the so-called lymph-swelling to be an *extravasation of lymph*, depending on a rupture of the lymph-vessels, or on an unnatural extension of their walls, and they explain the gradual sinking of the powers of the constitution and so on, which occur at the latter period of the disease, and after its bursting, by the continued loss of the lymph.* The observations made on the fluid contained in these swellings (which Rust imagined to be only in the earlier period of the disease, transparent and colourless) have shown that it has more of the properties of pus than of actual lymph, and Walther has decidedly proved that the acceptation of the term lymph swellings in the sense just mentioned is inadmissible; that they must be considered only as abscesses (*lymph-abscesses*) preceded by a stealthy, if not a sensibly perceptible, inflammatory condition, which, however, on account of the too much depressed vital activity, could not produce a plastic consistent pus, but only a secretion of a thin more or less turbid lymphatic fluid. The opinion advanced by Beinl that the strongest and most healthy subjects are commonly more subject to this disease than the weakly, that men more than females, and that, without an external injury, a general diseased condition is incapable of producing a lymph-abscess, is incorrect, and has been disproved by Rust. How frequently, even by writers on lymph-swellings, cold-abscesses and such collections of pus as have formed at distant parts (*congestion-abscess*),† in consequence of carious destruction of the bones of the vertebral column, have been taken for lymph-swellings, and treated as such, I myself have frequently observed."—(Vol. I. pp. 60, 61.)

In commenting upon the foregoing paragraph, our author states, that—

"Nasse‡ describes a case in which a powerful healthy young man, in consequence of an external injury, had a swelling formed on the upper part of the thigh, the contents of which, after opening, perfectly resembled lymph. The pouring out of a clean transparent fluid could not be allayed by any treatment recommended for lymph-swellings, and the patient was exposed to the danger of hectic consumption. The local use of a solution of nitrate of mercury alone brought the lymph-vessels to close. This case (which I myself saw, although only once, in passing through Halle, and convinced myself of the continued outflowing of clear lymph which could be increased by pressure) proves that a col-

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* J. A. Schmidt, über den Grund der Todtlichkeit de Lymphgeschwülste; in Abhandlungen der Medic. Chirurg. Jos. Akademie in Wien, vol. ii.

† A. Pauli, Bemerkungen über Congestions abscesse; in Rust's Magazin, vol. vii. p. 383; vol. viii. p. 434.

‡ Archiv für medicinische Erfahrung von Horn, Nasse, und Henke, vol. i. 1817, p. 377.

> lection of lymph in the cellular tissue is possible, as the consequence of an actual tearing of lymph-vessels by external violence, the exudation from which ceases only by obliteration of the torn vessels. Cases of this kind are, however, undoubtedly very rare; to them alone can be applied the term *lymph-swelling* in its proper sense, and therefore the above advanced opinion, '*that the cases commonly spoken of as lymph-swellings are merely modifications of abscesses,*' is rather confirmed than contradicted."—(Vol. i. p. 61.)

To this Mr. South appends the details of a case which occurred to him in 1839, and was entered in the books of St. Thomas's Hospital as a "Collection of synovial fluid within the femoral sheath," but which, to use his own words, "seems to be more nearly allied to the lymph-abscess of this paragraph, of which I was then ignorant, than to a collection of synovia, as I thought it perhaps might be." The case itself is too long to be quoted.

Mortification.—At paragraph 25, our author specifies various circumstances that may give rise to mortification. To these the translator appends several others on the authority of Brodie, Travers, &c.; and cites some observations of his own, of which the following are, perhaps, the most worthy of notice.

> "Mortification occasionally happens in simple fracture, from slow but continued effusion, and without wound of the principal artery or arteries of the limb. I have seen this once in a flour-porter, whose leg was broken by being jammed with a cart-wheel; his constitution speedily took the alarm, and, though incisions were made through the skin to relieve the tension, he gradually became worse, and sunk into hectic, in which state his limb was removed; but he died a few hours after. Although from the first no pulsation could be felt in the tibial arteries, yet the examination after death showed them uninjured and undiminished in size.
>
> Mortification I have also seen in one or two instances occurring from splints having been applied previous to the substance of the swelling after fracture, and not proportionally loosened as the swelling increased."—(Vol. i. p. 69.)

The truth of the foregoing remarks we could verify by cases that have fallen under our own eye; and we may further add, that local injuries occasionally give rise to mortification in a way not mentioned either by Chelius or his translator. We have known instances in which an external injury, without leading to an abrasion of integument, or to rupture of any organ, has suddenly and completely arrested the current of circulation through the principal vessel of a limb; the vessel from some cause or other being at once blocked up by the coagulation of the blood within it. The sudden arrest of circulation in this way is uncommon, but may be now and then seen in limbs that have been subjected to great physical violence. A slight blow over the immediate course of an artery, without leading to any rupture of the vessel whatsoever, will occasionally produce it.

Loss of Isochronism in the Arterial Pulsations of Different Vessels in connection with Mortification, &c.—In commenting on arteritis as one of the causes of mortification, Mr. South alludes to the case of a young man labouring under inflammation of the left brachial artery, which presents one feature not frequently noticed, and upon which, though Mr. S. does not dwell upon it, we wish to make a passing observation.

> "*Aug.* 9, *A.M.* Whilst putting on his waistcoat, he was struck with pain like the prick of a pin, about the middle of the left upper arm, and in the track of the brachial artery, which continued for about an hour, and during that time his arm 'became dull and cold as low as the elbow.' He saw his medical attendant at 10 A.M.; the arm and hand were then cold, and no pulsation could be felt below the arm-pit, at which part the artery was felt beating, but not forcibly, (90 a minute,) and over it great tenderness on pressure. The pulse of the right wrist

was 100, and rather more powerful than usual. The ailing arm was ordered to be put in warm water for a quarter of an hour."—(Vol. i. p. 90.)

So far as we now remember, Abernethy was the first to notice that the pulsations in different vessels of the body, as in the example just given, are occasionally found not to correspond in time or frequency. We have ourselves observed this want of isochronism in three instances; once in the posterior tibial artery, in a case of gangrene of the great toe depending on circumscribed inflammation in the upper part of the femoral artery; once in the vessels at the wrist, in a case of gangrene of a finger connected with inflammation and partial obstruction in the upper part of the brachial artery; and once again in the posterior tibial, some days after a ligature had been applied to the femoral artery. Our observations on these several cases, were carefully made, and in the first and last case, several times repeated, so as to leave on our own mind no doubt of their accuracy.

Amputation for the Arrest of Gangrene.—At paragraph 74 we find Chelius and his translator at issue on the question of amputating in certain cases of gangrene. According to Chelius, if gangrene be produced by external violence, or if the cause of it can be removed in the removal of the gangrenous part, amputation may become necessary, even though the disease be still disposed to spread; and the operation performed under these circumstances, may be the means of preserving the patient's life. Mr. South, on the other hand, would, under no circumstances, resort to amputation while the gangrene is spreading. "For," says he, "the same action will be set up in the stump, and the patient's condition rendered worse by the shock of the operation. Only when the gangrene is proved to have stopped by the line of separation having descended to some depth in the soft parts, is amputation to be entertained."

As a general rule, no doubt, the course advised by Mr. South is the safest; as it is the one most commonly adopted. Nor would Prof. Chelius venture from it rashly. We must allow him to describe his own mode of proceeding.

> "In most cases nature, after the gangrene is defined, throws off the gangrenous part, and *amputation is not required.* Amputation *is not applicable* in gangrene depending on an internal cause which is still in operation; for, in such case, after the performance of amputation, gangrene again takes place in the wound. But when the gangrene has effected the whole thickness of a limb, and is defined, and the separation of the dead part cannot be expected; or, when produced by external violence, it is proceeding. but the cause of the gangrene can be removed with the gangrenous part, amputation is to be considered as necessary and likely to save life. It is, however, here to be borne in mind that gangrene in the deeper parts commonly makes further progress than the external appearance indicates. The amputation must always be performed in the healthy part."—(Vol. i. p. 111.)

For ourselves, we must agree with Chelius, that, under certain circumstances, amputation should be advised while the gangrene is yet undefined by any line of demarkation; and on turning to M. Velpeau, we find him of the same opinion. In regard to the practice long since established by Pott and Sharp, of amputating only after the gangrene has been definitely checked, M. Velpeau remarks, "This manner of viewing the subject, based as it is upon an accurate observation of facts, should be adopted as a general, but not as an absolute rule." The circumstances under which such a procedure would be proper, imply, of course, local injury so severe as to lead to a fatal issue if the patient be left to the efforts of nature alone; secondly, freedom from internal organic disease that can in any way be associated with the occurrence of the gangrene, and a manifest cause for the latter that can either be removed with it, or attributed wholly to external influences.

Within the past two years, although strenously opposed in consultation with surgeons of experience, we have, in two instances, resorted to amputation in cases of traumatic gangrene. In both, the gangrene was the result of overwhelming injury; one from the bursting, the other from the accidental discharge of a cannon. In both, amputation was performed at an interval of some days after the accident, and while the gangrene was in progress. In one, the amputation was performed above the knee, and the patient recovered without an untoward symptom; in the other the arm was removed at the shoulder-joint, the gangrene was arrested by the operation, and the stump took on a healing action, but tetanus supervened and terminated fatally on the twelfth day.

Erysipelas.—The second section of the first division of Chelius's book opens with the consideration of erysipelas, which he treats of under two heads, the true and the false; the one depending on previous vitiation of the general health; the other occurring without any previous constitutional disturbance, and mostly from external irritation. The following is his account of the true erysipelas.

> "The *true erysipelas* appears without any local disposition to disease, but with previous general indisposition, which is usually shown by weakness and heaviness of the limbs, listlessness, pain in the region of the stomach, loaded tongue, nasty taste in the mouth, disposition to vomit, more or less active fever, headache, wandering, lethargy, or madness,—as a pale uncircumscribed redness of the skin, fading into yellowish, which spreads unequally, is shaded off towards the edge, disappears on pressure with the finger, but returns when the pressure is removed. After the appearance of the erysipelas the fever generally diminishes or disappears; but every fresh attack is accompanied with fever. The seat of this erysipelas never extends beyond the lymphatic-vascular net overspreading the surface of the cutis. The severity of the disease is as various as is the condition of the part first attacked; it, however, usually subsides under critical discharges of perspiration and urine, and with scaling of the skin; it never runs into suppuration, but only, with weakly constitutions and other concurrent circumstances, into ulceration and gangrene, in consequence of which the destruction of the surface of the body extends to the parts beneath, and there ensues, not a bounded fluctuating abscess, but an open, wide-spreading, putrid, ulcerating surface. If the scaling of the skin, critically following the erysipelas, be disturbed by moist remedies, by cold and so on, dropsical swelling ensues. This erysipelas is very fugitive; it subsides of itself; but more commonly after the external use of moist remedies, of cold, or on mental emotions, and so on, it suddenly quits the surface, and causes inflammation of the brain, chest, or belly, madness, convulsions, paralysis, and so on. The true causes of this erysipelas are biliary irritation, disturbance of the functions of the liver, collections of gastric impurities, use of indigestible food, obstruction in the portal system, and a prevalence of peculiar atmosphere and temperature, in consequence of which it seems to be commonly epidemic, especially towards autumn and during summer."—(Vol. i. pp. 115, 116.)

He further speaks, in the note following the foregoing description, of vesicular and bullar erysipelas, as a variety of the true form.

Mr. South questions the propriety of applying the term erysipelas to the disease described under that name by Chelius. We need not cite his own words. He attempts, after the manner of the dermatologists, to point out the distinction between erysipelas and erythema, as drawn merely from external appearances; and, to us at least, his remarks appear somewhat bookish and hypercritical. The author's account of the disease, however, might have extended, with advantage, to the modification of its symptoms and effects resulting from the parts affected. We see no special notice of erysipelas of the head and face; of erysipelas as it is reflected along the mucous surfaces, leading, as it occasionally does, to angina; and causing death, as we have more than once observed, by suffocation from œdema of the glottis. The erysipelas of hospitals, and the modes of preventing it; and the association and frequent alternation of erysipelas with peritoneal inflammation and typhus fever; might also have been noticed as occurring without any actual recession of the external efflorescence.

The inflammation of the brain, of which Chelius speaks as resulting from the recession of erysipelas, is perhaps less frequently identified by post-mortem inspection than severe congestion of that viscus—an alarming complication, which may be sometimes instantaneously removed by vesicating the scalp with concentrated aqua ammoniæ. Chelius does not include phlegmonous erysipelas in his description of the true, and he cannot apply to it his description of the spurious form of the disease. But to this point we find the translator has alluded in his notes upon the text, as well indeed as the author himself, under the head of metastatic abscess. The course of treatment, internal as well as local, pointed out by Chelius and his commentator, corresponds closely with that commonly laid down by the best of our surgical writers. We need not, therefore, more particularly refer to it. M. Velpeau, on the other hand, has a favourite treatment of his own for this affection, an account of which Dr. Townsend has given us among his notes to the first volume of the Operative Surgery.

M. Velpeau, he tells us, has treated one thousand cases, and has taken minutes of four hundred; and yet, up to the present time, *his experience extends only to external remedies.* Among these he has experimented with compression, blistering, nitrate of silver, mercurial ointment, hog's lard, white precipitate ointment, sulphuric acid, hydro-chloric, citric, tartaric, and dilute acetous acid; common salt and water, liquid nitrate of mercury, camphor, and bird-peck punctures, and all to no purpose. "Professor Velpeau had in despair renounced all the above remedies," when "his attention was drawn to the changes effected upon the blood by the preparations of iron." "Impressed with the idea that the inflamed tissues in erysipelas are impregnated with blood and altered fluids, he asked himself the question, if *ferruginous* applications might not have some efficacy upon a disease so superficially situated?" He settled upon a formula of *sulphate of iron*, in solution, nine drachms to forty ounces of water; or, in the form of ointment, eight parts of the salt to thirty of lard. The new remedy was employed in forty cases, with something like encouraging results, which we need not particularize.

> "Unless, therefore, says M. Velpeau, numerous and remarkable coincidences have on this occasion deceived me, as so often happens to others, there is good reason to believe in the efficacy of sulphate of iron as a topical application in erysipelas. In *no* case did the inflamed surface resist this means over twenty-four to forty-eight hours. It is only strange that the spreading (*ambulant*) erysipelas, extinguished at the point of its origin, continued, nevertheless, under this treatment to develop itself, even upon regions already covered and wet (*enduites et imbibées*) with the preparation of iron. Can it be that this remedy, like so many others, may be curative but not preventive? Is it necessary, in order that the inflammation should be modified, that it should be completely established?"
>
> "The researches I am continuing to make will, perhaps, enlighten us on this subject."—(Vol. i. p. 71.)

We shall not attempt to comment upon the foregoing, further than to notice the acknowledgment, that M. Velpeau has no experience of the use of internal remedies in the treatment of erysipelas; a singular announcement, certainly, that he should allow a thousand cases of this disease to pass through his hands without even attempting to employ the means upon which most other surgeons place their principal reliance. In justice to M. V., however, we must remark, that the foregoing facts constitute no portion of his operative surgery, and may have been incorporated with his book without due consideration.

Hemorrhage Incidental to Operations on the Tonsils.—Chelius, in the third section of his first division, among other forms of local inflammation, treats of tonsillitis, chronic enlargement, abscess, and gangrene of the tonsils. We shall not follow him in his account of these. But we cannot pass over Mr. South's Notes, on the dangers incidental to puncturing, scarifying and excising the tonsils. They may serve as a caution to many who are yet anxious for the first opportunity of trying their shaving machines upon these organs, too often the mark for beginners. First, *of scarifications:*

> "In scarifying the tonsils, there is danger of wounding the carotid artery, or some branch, which will continue bleeding and cause serious alarm. Watson mentions in his Lectures a case of fatal bleeding from wound of the internal carotid artery:—'Only a very few years ago, in Ireland, it was struck by a surgeon while scarifying a gentleman's tonsil, and he died in three minutes.' In another case, which occurred under Watson's own care in 1838, in which the tonsil glands, during convalescence from scarlet fever, having become so enlarged as to impede breathing considerably, 'the surgeon in attendance punctured the tonsils. The next day a good deal of hemorrhage took place; and this recurred several times, to a considerable and even alarming amount. When the clots that formed were wiped away with a sponge, the blood could be seen welling out in a little stream, with a pulsating motion, from a small incision in the left tonsil. The hemorrhage was ultimately, after much trouble and anxiety, arrested by applying a pencil of lunar caustic freely within the bleeding orifice." (p. 792.)—(Vol. i. p. 160.)

Second, *of Puncture:*

> "Portal (*Cours d'Anatomie Médicale*, vol. v.) mentions a case in which, in performing this operation with a pharyngotome, "a dexterous surgeon of Montpellier had the misfortune to open a large artery, and see the patient perish of so severe a hemorrhage that nothing could arrest it." (p. 509.) Allan Burns also says:—'In this country, (Scotland,) I have been informed that a surgeon, in opening a tonsillitic abscess, actually did plunge the knife into the carotid. I need hardly add that he lost his patient before he could suppress the bleeding.' (p. 256.) My late colleague Tyrrell was accustomed to mention, in his Surgical Lectures, a case to which he was fetched by a practitioner, who, having punctured an abscess in the tonsil gland, the wound was immediately followed by severe bleeding, and the patient was dead before he could reach the house. Sir Benjamin Brodie informs me that he is cognizant of two cases in which death from bleeding ensued after the puncture of tonsillar abscess.
>
> "From the puncture of an immature tonsillar abscess, alarming hemorrhage may occur, without, however, destroying life; for the following instance of which I am indebted to my friend Lawrence:—
>
> Case.—"'In a gentleman labouring under *cynanche tonsillaris*, a premature puncture was made, with the expectation of evacuating matter. A most profuse bleeding ensued, which stopped from the occurrence of fainting, and did not recur. It, however, not only seriously alarmed the patient and those around him, but also the gentleman who made the puncture. A long time elapsed before the patient recovered his strength.'"—(Vol. i. p. 162.)

Third, *of Excision.*—The large vessels in the neighbourhood of the tonsil are not often wounded in this operation, and yet it occasionally gives rise to fearful bleeding. We are aware of one instance, in which a clergyman nearly bled to death after the removal of a tonsil by means of one of the fashionable tonsil cutters. "Of wound of the carotid artery in removing the tonsil gland," says Mr. South, "I have not met with, nor heard of a single instance."

> "But their removal is sometimes attended with very fearful hemorrhage. My friend Callaway informs me, that he has 'seen sometimes considerable, and, in one case where he had removed the tonsil by the knife, alarming hemorrhage in a boy of seven years of age, which required stimuli, &c., to recover him from the fainting which followed.' I have to thank my friend Shaw for the following
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> "CASE.—A man aged forty years was deaf in the left ear, and the tonsil on that side being enlarged, it was excised with the guillotine on *Saturday*. No bleeding of consequence followed, the gland being hard and light-coloured, as if of old standing. On *Monday* he complained of sore throat, and the incised surface appeared as if a superficial slough were about to form. On the afternoon of *Tuesday* bleeding commenced in the lower part of the cut surface where ulceration had taken place adjoining the slough. An oozing of blood, varying in quantity, continued, in spite of repeated attempts to check it with styptics, till the afternoon of *Thursday*, when he was so much exhausted that the carotid artery was tied. The bleeding now ceased completely; the wound rapidly closed, and the ligature came away on the twelfth day; in a short time after he was discharged cured."—(Vol. i. p. 166.)

Time for Opening Abscess of the Breast.—Inflammation, leading to abscess of the female breast, according to Chelius, may occur either during nursing or after that period; and may be situated "either in the *skin and cellular tissue alone* or *in the parenchyma of the gland itself*." To which he might have added, that large abscesses are occasionally met with in the breasts of young women before marriage; and may be situated as above stated, or lie between the gland and the surface of the pectoralis major muscle beneath it. In the treatment of such abscesses we find Chelius and Mr. South again at issue. According to Chelius, "If the inflammation pass into suppuration, the softening poultices must be continued, cicuta and mercurial plaster applied, and the *opening of the abscess left to nature*." This latter part of his advice is rather heterodox among the surgical authors of the present age at least; and, on this point, we have no hesitation in siding with Mr. South, who states that "the abscess is *always to be punctured freely as soon as fluctuation can be distinctly felt*, and whilst the walls of the abscess are still thick." His reasons for this course are numerous and satisfactory; but in these we need not follow him.

Gonorrhœa.—This disease Chelius speaks of in his section on Local Inflammations; and here we meet with one of the striking inconveniences of his artificial arrangement of subjects. He is forced to separate gonorrhœa proper from most of its concomitants and consequences. Syphilis, or rather syphilitic ulcers, are spoken of in another division of the book; disease of the testicles depending on the one or the other of these, out of this connection; and strictures and their consequences are separated from each other, as well as from the primary diseases that give rise to them. As to the *nature* of gonorrhœa, and its connection with the venereal disease, he lays down the following distinctions:

> "1. Gonorrhœa *arising without infection from external injury*, for instance, hard riding, blows upon the urethra, onanism, two frequent connection, introduction of foreign bodies into the urethra and so on; or *from internal disturbance*, as herpetic, or gouty humours, repelled eruptions, suppressed secretions and so on.
>
> "2. Gonorrhæa *depending on peculiar contagious* matter, the influence of which, however, does not spread beyond the urethra.
>
> "3. Gonorrhœa *which has a venereal origin*, rather as a consequence of general

venereal disease, or as a primary syphilitic affection with or without ulceration. This kind of gonorrhœa may pass into general venereal disease."—(Vol. i. p. 182.)

Our author enters at some length into the history of this affection; and Mr. South's additions on this point are also quite extensive. We shall notice only one of his remarks. "In deciding upon the cure of gleet," says he, "let it never be forgotten that so long as only six or eight drops of the discharge are observed during the day, or even if the lips of the urethra be merely moist with it on rising in the morning, the cure is not affected, and the person ought not to marry, or he will infect his wife."

Syphilitic Inflammation of the Testicle.—In enumerating the several causes that give rise to inflammation of the testicle, Chelius admits, in common with most others who have of late written on the venereal diseases, that "it may be a symptom of general syphilis." Mr. South, after referring to Hunter and Astley Cooper as siding with Chelius in his opinion, as he might have done to several others who have made the various forms of syphilis their special study, states, at length, that "notwithstanding these high authorities, I must confess I have great doubt as to the swelling of the testicle depending on a syphilitic cause." As to ourselves we have no such doubts whatever. But we have serious doubts in admitting as proved, a proposition assumed by Mr. South, on the strength of a case which is too long for us to quote, viz., the metastasis of gonorrhœa, and of gonorrhœal inflammation of the testicle to the brain. See his case, vol. i. page 206.

Inflammation of the Joints.—The concluding chapter of the first division of the work of Chelius, occupying about eighty-four pages, treats of inflammation of the joints; and, as here enriched by Mr. South's very copious notes, it constitutes one of the most valuable and useful chapters in the whole work. It is sub-divided into two parts; the first treating of inflammation of the several tissues entering into the structure of joints in general, as of the ligaments, synovial membrane, cartilages, and bones; and the second treating of the different forms of inflammation in particular joints. Mr. South has entered very fully into the healthy and morbid anatomy of the synovial membranes and articular cartilages, giving all the recent investigations by the microscope and otherwise, with running notes on the views and opinions of the best practical writers on the joints. Without attempting to analyze the contents of this chapter, we must commend it to the careful examination of our readers. We must make room, however, for a part of what is said of

Inflammation external to the capsular ligament of joints,—a form of disease frequently mistaken and treated for a more serious affection, even to the sacrifice of the limb. We have ourselves met with several cases in which we have confounded, for a time, disease in the cellular membrane about the joints, with inflammation beneath the capsular ligament; and have known extensive superficial abscesses mistaken for ulceration and exposure of the articular surfaces. We quote from Mr. South:

"The disease of the cellular membrane appears in two forms: 'the one in which a single, or more spots may have been the seat of the inflammation, having its origin from some injury which the part may have received, and pursuing a chronic course to the formation of small sacs of pus in those situations, which, perhaps, ulcerate through the synovial membrane; the second case is that in which the whole of the cellular membrane, surrounding the articulation, becomes inflamed, and ultimately envelops the joint in one large abscess. The first case is the more common of the two; the latter the effect of a sudden attack of inflammation, and more active in its course.'

"In 1839, I amputated the knee of a man, aged twenty-seven years, for disease of the former kind, which had resulted from slipping down stairs and bending his knee under him sixteen months before. The examination of the joint presented a large abscess on the inner condyle of the thigh-bone, which it had flattened and somewhat roughened without laying it bare; another long abscess extending from the knee upwards behind the hamstring, and downward, about three inches, below the head of the fibula; the skin over both abscesses very thin, but neither communicating with the other, nor with an open wound upon the outer condyle, the remains of an abscess which had burst five weeks before the operation. Behind the knee, in the popliteal space, was a fourth abscess, large and deep. Neither of the four had any communication with the cavity of the knee-joint, which did not contain any pus, but the synovial membrane, around the knee-cap, was thickened, soft, and jelly-like.

"Earlier in the same year I saw a case of the latter kind in a woman who, about a month previous, had received a blow on the inside of the knee; a fortnight after, she was attacked with severe shivering, which was followed by much swelling and puffiness about the joint, especially on the inside. A puncture was made just below the knee-cap, and twelve ounces of good pus discharged, but it was requisite to make a second opening two days after, and eight ounces more passed out. She did well. In a second case, where I had been attending a lady for many months, with what seemed to me chronic inflammation of the synovial membrane, with large effusion in the cavity of the joint; suppuration occurred some time after, whilst she was in Barbadoes; the abscess was opened, and she did well. Both these cases I, at the time, considered connected with the joint; but the result proved that such could not have been the case."—(Vol. i. pp. 234, 235.)

Wounds.—The second main division of Chelius' work commences with the consideration of wounds. These are spoken of under—1. Wounds in general; 2. Wounds in Particular Parts. This section is one of great extent, occupying about 226 pages; but we find, though the whole subject is well handled by the author and annotator, only a very few points calling for any special attention. In this section we meet with almost the only evidences we have met with in the whole work, of slight inattention on the part of the translator, in referring to authorities. Thus, he speaks of Belloq's well known instrument for plugging the posterior nares, as "a clever French instrument, whose inventor I do not know, which I brought many years since from Paris;" and he has allowed the name of his own countryman, Bromfeild, the inventor of the tenaculum, to stand Brownfield, as it may have, perchance, been erroneously misspelt by the author; but which is not so misspelt in his fourth edition, the only one to which we have access. In mentioning these oversights, we may also allude to another, vol. iii. pp. 100, 101, common to both author and translator, in coupling the names of Verduc and Guattani, as if the two belonged to one individual. We may notice in connection with wounds: first, some of the author's observations on the

Modes of Arresting Hemorrhage.—"The means by which bleeding may be staunched," says he, "are the *compression*, *ligature*, and *torsion* of arteries; *styptic astringent* remedies; and *cauterization*." He might have added to these, *elevated position* of the part from which the hemorrhage is proceeding, *nauseating remedies* internally, *derivative* and *revulsive applications* to parts remote from the seat of hemorrhage, and perhaps some one or two other expedients that are now and then of service.

Compression, he speaks of, at some length, under the heads of mediate and immediate: among the first of these, he speaks of pressing the vessel on the cardiac side of the injury, either with the fingers, the tourniquet, special compresses, graduated compresses, and slightly drawn bandages.

Among the second, he speaks of placing rolls of charpie, or pieces of agaric, sprinkled or moistened with styptics, over the mouth of the bleeding vessel, and securing these tightly with a suitable bandage. It will be seen that he here makes no mention of "compressed sponge," an article which some of our older surgeons were fond of recommending. Chelius very naturally leaves to the good sense of his readers and pupils to determine for themsevles what sort of material their graduated compresses should be made of; and, in so doing, he has left open to Dr. Mott an avenue to some little notoriety in his "somewhat novel" discovery, that it may be made of compressed sponge. We must allow Dr. Townsend to explain:

> "Dr. Mott believes he has seen an instance lately, in which the subclavian artery, without the scaleni muscles, may have been wounded during an operation for the removal of a small tumour above the clavicle. The wound was probably of the nature of a *small flap* on its superior surface, between the first rib and the scalenus anticus muscle. In fact, the artery was perhaps nicked in this part, as a terrific hemorrhage ensued. In this dilemma, Dr. Mott, being sent for, adopted instantly a treatment somewhat novel, but which proved eminently successful, and went to corroborate his suggestion that it was the subclavian which was wounded.
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> "The practice consisted in the immediate application of a *small portion* of compressed sponge upon the bleeding part, which was situated at nearly the depth of the forefinger. This was followed successively by other small portions of sponge, until the wound was entirely and *compactly* filled up. An entire flat piece of sponge, just the size of the external opening of the wound, was now nicely adjusted over the ten or dozen smaller pieces which had been previously impacted. Finally, a larger flat piece of sponge, of still greater dimensions than the last, was now used to cover the whole mass, and to extend some distance on every side beyond the margin of the wound.
>
> "Pressure with the hand was then made, by a succession of assistants, unremittingly for three days and three nights. After this, the pressure was confided to adhesive straps and a bandage, until suppuration made it proper to commence the removal of the sponges. This was done from day to day, with the utmost care, and by taking away piece after piece, without the least violence, until the last was separated, which was finally effected at the expiration of a week from the time that this surgeon commenced with their removal. The wound then granulated, and healed beautifully."—(Vol. ii. pp. 30, 31.)

The statements above set forth, if nothing further had been known either in regard to the case in which the sponge was employed, or in regard to sponge itself, might redound, in some measure, to Dr. Mott's credit for invention; but, as the facts have been elsewhere set forth, (see the *New York Journal of Medicine*, for March, 1846, pp. 242, 244,) it appears that there was not the slightest evidence that the subclavian artery had been injured; that the compress never for an instant checked the artery at the wrist; that the wound never cicatrized; and the case terminated fatally, by erysipelas. The colour given to the case by Dr. Mott, has been the means of inflicting serious injury on the fair fame of a most worthy surgeon, not unknown to the profession at large, and who had good reason to look for better treatment.

Ligature.—Chelius, at paragraph 291, describes his mode of securing a divided artery, as follows:

> "In tying arteries the surgeon must endeavour, as much as possible, to include none of the neighbouring parts in the ligature, and still not completely to isolate the artery. He seizes the mouth of the wounded vessel with the forceps, by laying the points of the instrument on each side of it, and gently drawing it forwards. An assistant carries a round, not very thick, but sufficiently strong, waxed silk ligature, about the vessel, ties a single knot, and, whilst he holds the ends of

the ligature with both hands, he draws the knot somewhat together, presses with both his fingers upon the artery, draws it sufficiently tight, and then makes a second simple knot."—(Vol. i. p. 336.)

But, says Mr. South:

> "I do not quite agree with Chelius as to the incomplete isolation of the artery before applying the ligature; but I do fully participate in his preference of the forceps to any other instrument for drawing out arteries. I always use two pair of forceps for taking up a large vessel; drawing it out with one pair, in the way he recommends, and then with the other clearing it entirely of *all* its surrounding connections. This was the younger Cline's practice, and I think very good, as it certainly excludes the accompanying nerve, which often excites severe pain and irritation. I am not, however, sure that the complete separation from the neighbouring parts at all hastens the throwing off the ligature.
>
> "The tenaculum is the instrument more generally employed in this country for taking up arteries; but I think it objectionable, as it commonly lifts up a large mass of soft parts which ought not to be included in the ligature."—(Vol. i. p. 337.)

It is rather singular that Mr. South should urge as an objection against the tenaculum, the very objection that its inventor, Bromfeild, (see his *Chirurgical Observations*, vol. i. p. 160,) long ago urged against the needle, and other instruments, which it was intended to supersede. We cannot appreciate as of any value Mr. South's objections to the use of the tenaculum. We have usually found it more convenient than the forceps as an instrument for seizing the artery, for holding it securely and separate from the surrounding soft parts, for guarding these soft parts against pressure and contusion, as well as for preventing bungling manœuvres in placing the ligature upon the vessel. We agree, however, with both Chelius and his commentator, as well as with most other sensible surgeons of the present day, in preferring the common round ligature of silk thread to all other contrivances that have been recommended, and that are still occasionally brought to our notice, under the name of animal ligatures—as if silk thread were not itself an animal substance, and as if dead animal matter introduced within a wound were not as much a foreign body, and as liable to excite irritation and prevent the union of the wound, as so much simple vegetable or mineral substance. And as to the speedy liquefaction of such ligatures, we hold that this is among the serious objections that should be urged against them, and it more than counterbalances the usually trifling inconvenience of having the end of a fine silk ligature lying on the lips of a wound.

The following suggestions for removing the ligature where it has been too long retained, are worthy of passing notice. They are from Mr. South's notes.

> "Some surgeons, when a ligature has been long retained, pass a probe by its side, as low as it will descend, and then twist thread and probe round until both come away together. But I prefer the younger Cline's practice of putting a thin whalebone spring upon the thread, the constant pull of which upon the knot makes it press against the obstacle which prevents its coming away, and produces ulceration, which sets it free often in the course of the day; but if not, the thread must be daily twisted on the spring, so as to keep it tight till it comes away. Another method is to roll the thread, close up to the wound, on a bit of bougie or wood, and prevent its uncoiling by fixing it with adhesive plaster, but the former plan is preferable."—(Vol. i. pp. 340, 341.)

The following note in regard to securing vessels at the bottom of deep wounds, should not be overlooked.

> "Another point in reference to taking up wounded arteries is also not to be

overlooked, namely, that if that side of the limb at which the wounding instrument have entered be at a greater distance from the artery than the sound side, it is preferable to cut down upon the vessel at the uninjured part. I recollect some years ago seeing this practice adopted with great success by my friend Travers. The patient had received a scythe wound on the outside of the leg, and the scythe passing across had wounded the posterior tibial artery, but did not penetrate the skin on the inside of the leg. Attempts were made to get hold of the vessel by enlarging the wound, but its depth was so great that they were fruitless. An incision was then made along the inner edge of the shin-bone, and the artery without difficulty secured."—(Vol. i. p. 338.)

Dissection wounds.—Passing over, for want of room, many other important points in the section on wounds, we next turn to a note of Mr. South's, in which he appears disposed to deny the poisonous character of dissection wounds.

"The question of absorption of poisonous matter into wounds, received in dissection, has been much disputed. But I must confess, that, after nearly twenty years' constant employment in the dissecting-room, I almost entirely agree with the opinions held by Lawrence on this subject. 'It seems to be very doubtful,' says he, 'in those cases, whether anything actually venomous or virulent is introduced, or whether the results of these injuries must be said to arise from such wounds, considered merely as mechanical wounds. If these be poisonous wounds, the poison certainly follows other laws than those we observe in cases in which we are more intimately acquainted with the poison. * * * If they arise from a poison, then it is one of a very uncertain, and, almost, you might say, capricious kind."—(Vol. i. p. 385.)

"The most certainly dangerous punctures, as far as my observation goes, are those which have happened in the examination of cases of peritonitis, either of the common or puerperal form; which certainly would lead to the presumption that, in such instances, there is an absorption of poison. But, on the other hand, I am sure that almost if not quite as severe symptoms have occurred when the wound has been received in examining a body recently dead and quite fresh. With regard to putrid subjects, or those just beginning to be so, my experience proves that wounds from them are almost invariably the least formidable kind. How these facts are to be explained other than by the assumption of a peculiarity in the constitution at the time of receiving the wound, I do not presume to say; but certainly, as regards the affections from peritoneal disease, there does not appear to be a very strong presumption of poisonous matter having been absorbed."—(Vol. i. p. 386.)

Chelius, in his remarks on dissection wounds, notices their capricious character; but he is not so decidedly disposed to deny that they may occasionally give admission to a poisonous principle. After having paid some attention to this subject, we have no doubt that, in some instances, dissection wounds actually do give admission to a morbific principle; whilst in others the disease arising from them is simply the result of local irritation. In some instances we find them exciting violent inflammation which is mostly confined to the neighbourhood of the wound; in others a less severe local irritation will lead to inflammation of the absorbent vessels as well as to sympathetic disturbance of the system; in others again, with scarcely any local disturbance, with no inflammation of the absorbents, and even without any actual abrasion of the skin, there will suddenly ensue, after an interval of a day or two, axillary swellings, rigors, irritability of the stomach, and, at length, a general febrile movement of the system, of a low nervous character, which may continue for weeks, and even result in death. Now, that cases of the latter sort are to be accounted for on the supposition that there is no morbific influence conveyed from the cadaver, we are not willing to allow; and one reason we would assign for the conveyance of such an influence, is the fact admitted by Mr. South himself, and which he is unable to account for, viz: that severe accidents following dissection wounds, are more apt to occur after examining subjects recently dead, than after examining those that are already far advanced in putrefaction. They are more frequent after post-mortem examinations, than after cuts received in the dissecting room.

Some years ago having had occasion, while in perfect health, to examine the body of an old lady who had died of an ovarian tumour, we had our hands for some time immersed in the jelly-like contents of the sac, and might have come in contact with some chloride of lime that was placed about the body; but whether such was the fact or not, we are certain that we received no puncture or incision of any sort during the examination. On the following day we observed about our hands a few minute vesications, which were cauterized, and gave no further trouble. On the second evening after the examination these vesications had not ceased to appear, and one of them was observed on one of the fingers of the right hand just before retiring to bed. This one was not touched with caustic. About the middle of the night, without any previous warning, we were awakened in a violent rigor, with agonizing pain and a hard lump in the axilla of the right arm. At this time the finger was giving no uneasiness, and there was no redness or soreness in the course of the absorbents. The rigor continued for the rest of the night, followed by vomiting and great gastric irritability during most of the next day. There ensued a protracted fever of a nervous type which continued about three weeks; and during more than half of this period the swelling in the axilla was not among the least troublesome of the symptoms. It may appear rather remarkable; but, we have rarely made a post-mortem examination since recovering from this attack, without observing the same sort of minute vesications about our fingers; and having invariably touched them with caustic as soon as they appeared, we have never experienced any further ill effects from them.

Wounds of the Head.—In the second subdivision of the section on wounds, while treating of wounds of the head, we find Chelius and Mr. South again at issue, in regard to the escape of extravasated blood, and the depth to which we may be allowed to proceed in search of it.

"If the extravasation be beneath the skull," observes the former, (paragraph 419), "it flows out after trepanning." "This is a very incorrect statement," says Mr. South. "The blood rarely if ever flows out after the trepan has been applied." According to our own recollection on this point, we would say that in this dispute, as in many others, there is reason on both sides. It is not so very rare to see the escape of blood after the application of the trephine; and yet as a general remark, Mr. South's words are correct when he states, in regard to the extravasated blood beneath the skull, that, "It is almost invariably found coagulated; and, therefore, though a little bloody serum may escape, the bulk of the blood still remains upon the dura mater, and always requires removal by careful scraping with an eye probe, or with the edge of a spatula where it can be easily reached."

Again: "If the *dura mater* be stretched, violet-coloured, fluctuating," says Chelius, "it may be divided by a suitable cross-cut. If the extravasation be beneath the *pia mater* it also must be cut into." "But," says Mr. South, "there has been great difference of opinion amongst the surgeons of this country in regard to the propriety of puncturing the membranes of the brain, when extravasated blood is presumed to be between the *dura mater* and the brain; and I must confess I am rather disposed to agree * * * with those who think little advantage likely to result from cutting through the *dura mater*." He goes very fully into an examination of authorities on this point; but, in these we cannot follow him. His position we believe, on this point, is well taken. The practice recommended by Chelius may in some instances be justified; but his advice should not be followed rashly. The bulging up of the dura mater into the opening made by the instrument, is no proof whatever of extravasation beneath it; nor is the apparent feeling of fluctuation. Even the dark colour of the membrane may be owing to other causes. We have seen surgeons of great experience commit errors in regard to these appearances, and discover their mistake only after having freely divided the protruding dura mater.

The Condition of the Brain induced by Concussion is a question of some interest, and is spoken of by Chelius as follows:

> "The changes produced on the brain by concussion are various, and may be divided into primary and consecutive. They consist either *in a sudden depression of the activity of the brain and nerves*, in which after death no trace of any mechanical injury, frequently only a sinking together of the brain, which does not completely fill the cavity of the skull, is found; or in *tearing of the vessels*, or even of *the brain itself*, and *inflammatory congestion*. In concussion the vessels of the brain are always more or less debilitated, so that when the first symptoms of concussion have passed by, they cannot withstand the subsequent influx of the blood, and in this way gorging with blood and its effusion through the relaxed walls of the vessels takes place. In concusion of the brain there are, therefore, various conditions to be remembered, namely, *torpor* and *weakness of the nervous system*, *irritation and inflammation*, *extravasation*, and not unfrequently *concurrent affection of the liver*."—(Vol. i. p. 451.)

As to the affections of the liver sometimes co-existing with injury of the brain, it is questionable whether or not the injury of the brain has had any direct agency in their production. The co-existence of abscess of the liver with injury of the brain was, if we remember rightly, first distinctly pointed out by Ambrose Paré; and many other surgical and pathological observers have, since his day, referred to it. The coincidence, however, is not a common one; and when it does occur, the disease in the liver, we are disposed to believe, may in most, if not all cases, be attributed either to local injury, to the secondary effects of phlebitis, or to the effects of constitutional disturbance upon an organ already predisposed to diseased action.

We cannot stop to notice any other of the local injuries spoken of in this important section. The author, in connection with wounds, takes up some of their constitutional effects, and these, too, we must pass unnoticed. We would only observe, that in connection with wounds about the neck and throat, we find no notice of an accident that should here have been alluded to, we mean the admission of air into the veins—a subject which has of late been very thoroughly investigated by the surgeons of Great Britain, as well as by others, with whose publications and labours Mr. South can scarcely be unacquainted.

Fractures.—In this section of the work we have noticed but few points of difference between the surgery of Germany and that of our own country; and in the four that we have noticed, we find that Mr. South has, in his notes, anticipated most, if not all, that should be said upon them. We cannot refuse a place to the sensible remarks of Mr. S. on the impropriety of extensive division of integument, and of the removal of sections of bone by the saw, as often and needlessly resorted to in cases of compound fracture.

"Enlargement of the wound in compound fracture should not be lightly undertaken, and as far as my experience goes, is not often requisite; for if the surgeon have a little patience and dexterity, a protruding fracture may often be coaxed, if the expression may be permitted, to recede into its place, when force is quite unavailing. Should it, however, be necessary to enlarge the wound, the operator should carefully select such part of it as with least division will permit the return of the bone.

"Sawing off the protruding portion of the fracture is still less necessary than enlargement of the wound, and should never be resorted to but on the most urgent necessity. I believe that in but exceedingly few instances its needfulness depends rather upon the incapable conduct of the medical attendant than on the nature of the accident itself.

"Loose pieces of bone, if not of large size, but lying between the main parts of the fracture and near the surface, especially if the wound be large and there be much bruising, are best removed at once, as they rarely unite, and commonly keep up irritation till they are thrown off: not unfrequently also they prevent the union of the main pieces, and render amputation necessary.

"During the progress of compound fractures, abscesses often occur, sometimes near to, sometimes more distant from, the wound. If after a few days they do not make their way to the wound, and empty themselves by it, or if after having so done, they burrow beneath the skin, it is best to puncture them, to favour the ready escape of the matter; but large wounds for this purpose are neither necessary nor advisable."—(Vol. i. pp. 559, 560.)

Mr. South is an opponent to all complex and fanciful apparatus for the management of fractures, as in other departments of surgery. In this he is a man after our own heart.

"I must confess that I consider the more simple are the means employed for treating either simple or compound fracture the better. The starched and gummed bandages have rendered this part of surgical practice as simple as it is efficient, but if the surgeon prefer wooden splints, he can always readily furnish himself, with or without the aid of a carpenter, with pieces of deal about three inches wide and the sixth of an inch thick, which he can cut to the requisite length for the limb on which the splints are to be applied. These, together with pads and bandages, are sufficient for the treatment of almost every fracture, either simple or compound; for the surgeon will do well to remember that the well-doing of the case depends rather on the way in which he adjusts the apparatus of whatever kind it may be, than on the gimcrackery with which some mechanical surgeons are fond of furnishing it."—(Vol. i. p. 562.)

The second volume of Chelius's Surgery opens with a section, which, under the heading of "Old Solutions of Continuity," includes a vast amount of heterogeneous topics, and includes some disorders such as hare-lip and cleft palate, which are arrested developments, and as such, not entitled to a place here. The first topic that strikes our attention is one that very naturally comes in after fractures, viz:

Unnatural Joints.—When the two ends of a broken bone not firmly united by cartilage, have received a sort of cartilaginous investment; or when, from any cause, they remain ununited for a period of six months or more, and the ends of the bone are still movable, our author would consider the case one of false joint. Unnatural joints of this sort "have been noticed in almost every bone, but they are most frequent in the upper arm." There is one form of unnatural joint for which he leaves no room in his descriptions, viz: that which is congenital, and which can scarcely be attributable to fracture. Among the various reasons which our author assigns for accidental non-union after fracture, we see no allusion to one cause which we are disposed to believe not the least common of the causes that give rise to it. We have reference to the early and prolonged use of tight bandaging, which, leading to atrophy of the limb, and interrupting the deposit of callus, is apt to arrest the reparative process, especially in the upper arm, where pressure would naturally have the greatest influence in this way, and where, in fact, the accident is most frequent. The usual modes of treating false joints are all mentioned in their turn, and we need not here enumerate them. But the procedure instituted by Dr. J. K. Rodgers of New York, and which has hitherto been mostly confined to that city,—excision of the ends of the bone and subsequently keeping the parts in coaptation by means of a wire suture—has found no place either in the text or in the notes of the commentator.

Dislocations.—There is a form of spontaneous dislocation that occurs mostly in growing children, as the result of arrested growth of the muscles, &c., about a joint; and another which may occur from atrophy of these muscles, &c., in adults; and which sometimes depends on chronic synovitis, or disease of the articular cartilages, more especially in the shoulder-joint. Of these accidents we see no notice in Chelius's account of dislocations, and these are the only admissions we see, to be supplied under this head; unless we should also wish to have admitted a notice of some recent instruments for the readjustment of bones; and which, we suppose, Mr. South, who must have been acquainted with them, could class among his "gimcrackeries."

The following passage on the reduction of a dislocation at the hip, is worthy of recollection.

> "In the dislocation downwards Astley Cooper used to say, in his Lectures, that it might be reduced by interposing the bedpost between the thighs close up to the *pelvis*, and then making extension.
>
> "Morgan and Cock, of Guy's Hospital, have reduced several dislocations of the hip-joint by placing the foot between the thighs, so that it presses against the upper part of the dislocated bone, and thrusts it away from the *pelvis*, extension and rotation of the limb being at the same time made by assistants. The principle of the operation is precisely similar to that in reducing a dislocated shoulder by putting the heel in the arm-pit. This practice was first introduced about ten years since by Morgan, (*Guy's Hosp. Rep.*, vol. i. p. 79,) and by it he has replaced a dislocation upon the *pubes*, one on the oval hole, and one upon the back of the hip-bone without difficulty, which he principally attributes to diverting the patient's attention from the operator's efforts by unexpectedly pricking or pinching. Cock has reduced one dislocation on the *pubes*, and two on the back of the hip-bone, by the foot between the thighs; but he informs me that the greater number of the persons so treated were weak or elderly. Till making inquiry, I was unaware of so many cases having been thus managed; I do not know that the practice has been elsewhere adopted, but I shall certainly try it, at the first opportunity, as it saves all the trouble and inconvenience of *pelvis*-straps and pulleys."—(Vol. ii. p. 242.)

Wry Neck.—We must next pass over nearly two hundred pages of important matter, among which are ulcers in all their varied forms, syphilis, necrosis, fistula, hernia, until we arrive at paragraph **1334**, where we find our author speaking of the causes that may give rise to wry neck.

> "The most frequent *cause* of wry neck is unnatural muscular activity. It is either congenital and depends on irregular position of the child in the womb; or it arises from violence during delivery, which affects the *m. sterno-mastoideus;* or it comes on later from the habit of always hanging the head to one side, especially in children, if they be constantly carried on one arm; if, on account of the continuance of any pain in the neck it be inclined to one side, by spasm and organic change in the structure of the *m. sterno-mastoideus.* If the cause lie in the unnatural activity of this muscle, it is always found, on the side to which the head is drawn, stretched like a cord, hard and unyielding; in attempting to bring

the head into its proper position, the muscle becomes more tense and prevents it. It is really only the *m. sterno-mastoideus* which is primarily shortened, and most commonly on the right side; rarely, also, the *m. cleido-mastoideus* and *cucullus;* the *m. platysma myoides*, may also be shortened. Frequently is the *m. sterno-mastoideus* of one side palsied, and the natural contraction of that of the other draws down the head. In this case the dissimilarity of the two sides of the face and the distortion of the features are not so great as in wry neck from unnatural muscular contraction; the head is drawn only towards the shoulder, but the chin is not raised. That the cause of the evil is in the bones is known, when no change can be observed in the muscles, and the general symptoms of softening of bone be present. The head is also usually more movable than in the former cases.—(Vol. ii. p. 422.)

In a note appended to the foregoing, he stated that he has seen wry neck induced by the application of a blister behind the ear. We might further observe, that it frequently is associated with, or follows inflammation of the tonsils, and other parts about the throat; the irritation extending from these parts downwards in the course of the deep fascia, and giving rise to the muscular contraction. Thus induced, it will sometimes subside in a few weeks after the disease in the throat has yielded; but in other cases, it does not so readily disappear.

Lateral Curvature of the Spine.—Mr. South has a sensible note upon what he considers a very frequent cause of this form of distortion, which at the risk of being prolix, we must refer to.

"The most common cause of a high shoulder, is to be found in the abominable practice of undressing girl's necks, as low as the hanging on of their clothes will permit. Instead of the shoulder straps of their dress being as they should be, fairly above the root of the acromial processes, they often, indeed most commonly, either only skirt the extreme end of those processes, and rest on the rounded upper part of the deltoid muscles, or are actually far down on the arms; in consequence of which, the dress having little or no suspension on the shoulders, is constantly dropping, and the girl to save her clothes dropping down, or at least to keep them in place, is continually hitching up the shoulder from which the shoulder-strap most easily slips, and thus the elevating muscles becoming stronger on that side, pull the shoulder permanently up, and produce a very ugly appearance. But the mischief does not stop here, for though there be really no disease in the spine, yet this constant hitching up of the shoulder causes the head and neck to be thrown to the other side, whilst the chest is drawn out to the same side, and thus a lateral curvature of the spine is produced, and a girl's figure spoiled, for the simple purpose of uncovering her neck and shoulders as far as possible, which, as well for decency, as for the preservation of the child's health, ought to be covered. Many parents have been thus the real cause of their daughters' distortion, if not of more serious consequences; and therefore, in growing girls who have the least disposition to slip their shoulder out of their dress, most especial care should be taken to prevent the possibility of keeping up this habit, by having the dress made so high, that it cannot slip down, and then the sensation of its slipping being lost, the child no longer continues to hitch up her shoulder, and by a little attention to her proper carriage, the mischief, if not of long standing, may be got rid of.—(Vol. ii. pp. 428, 429.)

Aneurism.—We notice this portion of Chelius's work, mainly for the purpose of correcting two misstatements which we have met with in other recent publications of this country, and which it is our duty to point out. In Dr. Pancoast's Operative Surgery, it is stated at page 55, while speaking of the *vertebral artery*, that "Nuntiante Ippolito relates two cases in which this artery was tied at its origin with success." This passage attracted our attention while preparing the review of Dr. Pancoast's work; but not having at that time the authority to refer to, by which the statement might have been corrected, we were forced to pass it by unnoticed. Chelius and Dr. P. both refer to the same authority, in regard of these alleged operations, viz: Froriep's Notizen, 1835, p. 304. But Chelius gives quite another version of the affair.

> "Nuntiante Ippolito, who saw two cases of aneurism of the vertebral artery, has proposed the following mode of tying it. After having found the triangular space formed by the external jugular vein, the hind edge of the sterno-mastoid muscle, and the upper edge of the collar-bone, a cut is to be made through the skin, from its top to the base, not exceeding two inches in length. The operator continues penetrating in this direction till he reach the inner edge of the *m. scalenius anticus*, and thus the artery is easily struck upon, without injuring one twig of a nerve."—(*Froriep's Notizen*, 1835, p. 304.)—(Vol. ii. p. 527.)

The vertebral artery, then, has yet to be reached for the first time in the living body, and Dr. J. K. Rodgers, of New York, by his recent operation on the inner side of the left subclavian artery, has come nearer to a demonstration of its practicability than any other surgeon. (See *N. Y. Journal of Med.*, March, 1846.)

The second error in regard to the ligature of arteries for the cure of aneurism, is to be found in Dr. Townsend's version of M. Velpeau's surgery—one of the books at present under consideration. At page 290, volume second of this work, Dr. Mott, while speaking of the possibility of applying a ligature on "*the left subclavian within the scaleni muscles*," says, "He saw the first, and perhaps the only attempt that ever was made to tie this artery. This was by my illustrious and revered preceptor, Sir Astley Cooper. After working indefatigably with all his eminent skill and superlative tact for an hour and a half, he abandoned the operation as hopeless. The patient died in the course of a few days."

The foregoing statement has reference to a case upon which Sir A. Cooper attempted to secure the subclavian artery from "above the clavicle," in 1809; and we can readily allow that after a period of nearly forty years, Dr. Mott's recollection may not be very precise as to facts. It so happens in regard to this case of Cooper's, that Dr. Mott has furnished us with the means of correcting his own error; for, at page 303 of this same volume, he has republished an account of this identical case, from the *N. Y. Med. Repos.*, in which he himself first published it as long ago as 1810. "The situation of the man," says Dr. Mott, in the journal above mentioned, "being truly painful, and it being evident that the disease must prove in a short time fatal, if no operation were to be performed, A. C. was determined to make an attempt to take up the subclavian artery *just after it had passed betwixt the first and second scalenus muscle*." "The most careful dissection was now necessary, and by means of the edge, and sometimes the handle of the scalpel, the muscles were separated, *till the nerves going to form the axillary plexus, were laid bare*." Dr. M. was probably not so good an anatomist in 1810, as he is at present, or he would have left out all that he says in this paper about the great risk that Cooper ran of coming in contact with the thoracic duct, while laying bare the nerves of the tracheal plexus. But, independent of this oversight, his first report proves to our satisfaction that Cooper's attempt was not upon the vessel at the *inner side* of the scalenus. Dr. Mott, however, as we are credibly informed, is not willing to relinquish his more recent view of the matter; and although the inconsistency of his two statements here placed side by side has been elsewhere pointed out to him, he has made no attempt to put himself right, as he might have fairly done, in his notes to the last volume. It becomes us, therefore, to look to other authorities in regard to this well-known case of Cooper's.

First, then, let us turn to M. Velpeau himself. "M. Ramsden," says Velpeau, (vol. ii. p. 217), "who performed his operation in 1809, appears to have been the first who actually tied the subclavian artery. Some time before him Mr. A. Cooper had tried, but in vain, to seize this vascular trunk; he tied a nerve instead of it, and the patient soon died of hemorrhage."

Mr. Samuel Cooper, under the head of axillary aneurisms says there are two modes of operating; "one by cutting below the clavicle," "the other by making the wound *above* the bone for the purpose of securing the subclavian artery at the point where it emerges from behind the anterior scalenus muscle," and in speaking of the latter mode of procedure, he alludes to Sir Astley Cooper's case, attributing the failure of the latter to the want of the aneurismal needle, which was not in use at that period. In the *London Medical Review*, for June, 1809, (vol. ii. p. 300,) is to be found the first notice of this operation, where it is spoken of simply as an attempt to secure the subclavian *from above;* all the previous attempts having been made on the vessel farther out, and *from beneath* the clavicle. Finally, Mr. South, a pupil of Sir Astley's, and attached to the same hospital with him, refers to this case in his notes to Chelius, in these words:—

> "The operation of tying the subclavian artery above the collar-bone was first attempted by Astley Cooper in the spring of 1809, but "the aneurism was very large, and the clavicle was thrust upwards by the tumour, so as to make it impossible to pass a ligature under the artery, without incurring the risk of including some of the nerves of the axillary *plexus.* The attempt was therefore abandoned."—(*London Medical Review*)—(Vol. ii. p. 518.)

With these authorities against him, it is to be hoped that Dr. M. may not take it amiss that the profession are not disposed to place much reliance on the statement which he has advanced in regard to Sir Astley Cooper's operation.

Varices.—The more we approach to topics of operative surgery, the more we are diverted from the pathological details of Chelius and Mr. South to the fuller operative details of M. Velpeau. To the former we may look for a short account of the pathology of varix, and to the latter for a very full enumeration and fair appreciation of the several modes of cure. On the whole, we are less satisfied with Chelius's article on the subject of varices, which gives marked evidence of having been written long ago, than with almost any other in his book, and in one point we believe the practice which he recommends would be as inefficacious as it is unsafe and improper.

> "*Puncture of the varix* with a lancet (anciently proposed by Hippocrates) must especially be employed in varices largely filled with coagulated blood, as well also as in those which are very painful, inflamed and much expanded; and, after the removal of the blood, pressure, together with cold applications and the horizontal posture are to be employed.
>
> "In cases of larger size and greater extent, the skin and the vein must be *cut into*, by an incision two inches long, upon the largest knot, the escaping blood kept back with the finger, the cavity of the vein plugged with sponge or lint introduced into it, and the bleeding staunched by the application of compresses and circular bandages. If the varicose expansion be only on the leg, one cut is sufficient; if it extend to the middle of the thigh, one cut is to be made above the ankle, a second close above the knee, and if the whole thigh be affected, a third cut is to be made at equal distance. The limb is then to be bandaged, and cold

applications to it used for some days. Inflammation takes place in the vein which so spreads from the principal to the other varix, that a greater degree of plasticity arises in them, and the neighbouring varices disappear.—(*Graffe, in his Introduction to C. Bell's Surgery.*)—(Vol. ii. p. 571.)

We hold that the danger incidental to operations on varicose veins, has less to do with the special mode of attacking them, than with the condition of these vessels at the time of operation; and that they should never be interfered with by any sort of operative procedure, whether that be the knife, the ligature, the pin, or the potential cautery, when in a state of inflammation.

We have now noticed some few of the more prominent topics calling for observation or criticism, in the first two great divisions of Chelius's work; and have not yet touched either of the remaining six, which occupy the whole of the last volume. We are reluctantly obliged, for want of space, to pass over all that is said of diseases depending on unnatural coherence of parts; all that is said on the presence of foreign bodies and retained secretions, including among other important topics the great subject of urinary concretions, and the operations for stone; all that is said of organic degenerations and adventitious growth, including an elaborate account of tumours, one of the most valuable and able chapters in the whole work; all that is said on the loss of organic parts, and on the superfluity of parts; and, finally, all that is said in the eighth or last division, on operative surgery proper, excepting only one or two questions on

Disputed and Suppressed Claims of Priority.—It is comparatively within a recent period that medical periodicals have sought with so much avidity to herald into notice every trifling operation. The surgeons of former days do not appear to have been so fond of notoriety, as at present many of them are, for feats of daring upon the living body. There is a charming modesty pervading the writings of most of the older masters of the art, who, in describing their own operations and inventions, leave to others the business of discovering their originality; and the discovery is often only made by comparing their writings with those of their predecessors. Far be it from us to detract from the credit of any one who has justly signalized himself by improving the practice of our profession, or by enlarging its means of usefulness; and yet we do believe that the present fondness for striking out bold procedures in surgery, is a morbid taste that must sooner or later yield to common sense; and that while it lasts it must have a deleterious influence upon human life. The skill required for such performances is by no means so great as many are disposed to think. And it should be a lesson to those who are continually hunting for renown in this manner, to find, that the feats by which, for a while, they imagine they have earned it, have actually been anticipated by obscure and unlettered individuals, as unknown to fame, as they are heedless of precedent. He who establishes a principle in our art, such, for example, as that of Hunter's for the treatment of aneurism, is worthy of being forever remembered; but he who establishes a process merely, exhibits a certain amount of ingenuity which most other sensible men, under the circumstances, might have displayed as well.

1. *Excision of the Lower Jaw.*—Dr. Mott, as we have already shown, has very properly relinquished all claim to having been the first in this country to follow Larrey in amputating at the hip-joint. But he is not so willing to relinquish his claim to *originality*, (he does not say *priority*,) in respect to excision of the lower jaw; and yet in a note appended to his

reclamation, he apparently with reluctance refers (Velpeau's Surgery, vol. ii. p. 917) to Dr. W. H. Deadrick, of Tennessee. We need not at present allude to the erroneous account of Dupuytren's operations on the jaw as given in the "Report of a Committee," &c., which we find reprinted in the second volume of this translation, (p. 902.) The "Clinique" of Dupuytren, (vol. iv. p. 628–33,) has only to be consulted to put this matter right. Dr. Mott was, perhaps, after Graefe, the first to publish an account of an operation for the removal of a portion of the lower jaw. Thus far, but no farther, should his claims be urged; and such appears to be the opinion of Mr. South, who gives the following summary, as to the result of all that has been said upon this question.

> "As will be presently seen, DEADRICK was the first who, in 1810, cut away the side of the lower jaw; in 1812, DUPUYTREN sawed off a large portion of the front of the jaw; in 1816, ANTHONY WHITE removed half a necrosed jaw from the socket; in 1818, ASTLEY COOPER sawed off the projecting part of the chin; in 1821, GRAEFE removed the front of the jaw; and in the same year, one-half of the lower jaw, which he exarticulated, and the patient lived: MOTT's first operation, in which half the jaw was removed, by sawing through the chin and across the ascending branch, was performed in March, 1822; his second, in which he exarticulated one-half, in May, 1822; died on the evening of the fourth day. CUSACK removed the left half of the jaw in 1825, first sawing through the horizontal and afterwards the ascending branch, and then exarticulating the condyle. These several cases will be referred to presently.
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> "I have thought it well to give this brief historical account of the amputations of the lower jaw, the authorities for which the reader can refer to; because the French claim excision of the jaw for DUPUYTREN, and the Americans, exarticulation of the jaw for MOTT; but neither of these justly-celebrated surgeons have title to the origination, or to the first performance of either operation, and their reputation will lose nothing by the just meed of merit being awarded to others, of whom, probably, their too ardent admirers had no cognizance."—(Vol. iii. p. 745.)

2. *Excision of the Upper Jaw.*—The upper jaw has been attacked in several modes: First, by scooping and chiseling; in this way tumours and morbid growths of great size, and in some intances perhaps involving the whole bone, were removed, centuries ago. Secondly, by the spring saw; in this way the greater portion of the bone has been excised without touching the morbid mass at all. To Dr. A. H. Stevens, of New York, belongs the credit of this procedure. M. Velpeau has properly awarded him such credit; but neither Chelius, nor Mr. South, has alluded to the operation. Thirdly, by amputation, or extirpation; in which the bone is wholly removed by detaching it from the other bones of the head with which it is naturally united. This last operation belongs to M. Gensoul, of Lyons; but Mr. Lizars, of Edinburgh, appears to have, prior to the publication of M. Gensoul's memoir, shown the feasibility of the procedure.

3. *The Speculum Oris, or Screw Lever.*—"We cannot permit ourselves to believe," says Dr. Mott, (Velpeau, vol. ii. p. 882,) "that any surgeon of rank, possessing the high moral character which it is presumable should, or we might say must, necessarily belong to at least the distinguished members of the medical profession, as the guarantee of eminence and respectability, would willingly or wilfully deprive another of the honour that belongs to him. It is therefore through sheer inadvertence or ignorance, which some might call culpable, of the true facts of the case, that might have permitted a surgical gentleman * * * to promulgate, as it were, ex cathedra and 'by authority,' to the rest of the world, the following, * * without a single word of qualification in behalf of any other individual whatever."

It is a good rule that works both ways, and Dr. M. should have remembered that what he was writing in his own defence, about excision of the lower jaw, might, with equal force, be turned against himself in other quarters. We need not allude to claims for the suppression of which he is in some degree accountable, as joint editor of a work purporting to comprehend all the latest improvements and discoveries in the surgery of America; under which head we might point to at least one omission, remarkable only to those who are aware of the circumstances in regard to a recent operation for the relief of stricture of the œsophagus, which was original as respects this disease. But we cannot pass over his rather strange assumption to the authorship of what he calls his screw lever for overcoming rigidity of the lower jaw, the fac simile of which as he had depicted it, may be found by any one who takes the trouble to turn to the twentieth plate of Heister's Surgery, vol. ii. page 31. Heister, indeed, would have this instrument employed only as a *speculum oris.* As a means for forcing open rigid contractions of the jaw he would not recommend it. He even declares that for such purpose every prudent surgeon should reject it as pernicious. And his opinion is borne out by a fact which we see mentioned in Dr. Townsend's Supplementary Appendix to the second volume of Velpeau, where it is stated that this very instrument in the hands of one of Dr. Mott's most skilful and accomplished pupils, was the means of fracturing the jaw-bone.

We must now bring to a close our hurried and imperfect notice of these two voluminous and important publications. In the work of Chelius, as translated and amplified by Mr. South, the practitioner will find the fullest and ablest digest extant, of all that relates to the present advanced state of surgical pathology; and a sufficient account of the principles and processes of operative surgery, to enable him, with a fair knowledge of anatomy, and a little ingenuity of his own, to undertake and execute any operation he may be called upon to perform. In the work of M. Velpeau, on the other hand, besides the miscellaneous, and sometimes valuable additions of the editors, he will find the whole art of operative surgery regularly systematized, and in such a manner that there is scarcely an operation possible, and none that he will be called upon to perform, for which he may not only find a precedent, but also all the details necessary for carrying it into successful execution.

With the exception of a certain redundancy of words, and a disposition to indulge rather too often in what may be called a *magno cum strepitu* strain, Dr. Townsend's labours, as editor and translator of M. Velpeau's work have, in a literary point of view, been very creditably performed. His notes and additions, as well as those of Dr. Mott, not always in keeping with the general character of the original work, are printed in the same type as the text, and rather too intimately incorporated with it, being usually separated only by brackets. The typography of this work, and the atlas of lithographic plates that accompany it, are worthy of commendation. Mr. South, as translator and editor of Chelius, has, after the original, dropped the usual titles of address. The frequent use of the German Mein Herr would certainly have been rather awkward; but the English Mr. and the French M. are easily introduced, and have the advantage, not a trifling one, of giving the reader to understand that the individual thus mentioned is still upon the land of the living. Mr. South attempts no refinements of diction; he speaks in unaffected English; but he is sometimes too English to be elegant. We have noticed a few cockneyisms, such as "immediately" for immediately after;" a few slang terms, such as "gimcrackeries" and "nicknackeries," and a few technical terms that might as well have been translated in accordance with common use. "Shoulder-blade" and "blade bone" will do well enough for scapula; "collar-bone" for clavicle; "shin-bone" is quite endurable; but "spoke-bone" for radius, is rather new; and "rump-bone" for sacrum, whatever it might have been in the days of Cromwell and the Long Parliament, is at present, at least in surgical terminology, rather obsolete. The mechanical execution of this work is also quite commendable. J. W.

Art. XIII.—*Lectures on the Physical Phenomena of Living Beings.* By Carlo Matteucci, Professor in the University of Pisa. Translated under the Superintendence of Jonathan Pereira, M. D., F. R. S., &c. London: 1847. 12mo. pp. 435.

In 1844, Professor Matteucci was appointed by the government of Tuscany to deliver, in the University of Pisa, a course of lectures on the Physical Phenomena of Living Beings. These lectures were subsequently published; and their popularity is attested by the fact, that they have already passed through two editions in Italy, and one in France.

The present translation has been made from a copy furnished to the editor by Professor Matteucci, and containing a very large number of additions and corrections. The numerous errors of the French edition,—so far as matter is concerned more complete than the Italian ones,—have been corrected by the author in the present translation, and he has also embodied in it the results of his more recent investigations. A few notes and some additional wood cuts have been appended by the editor, Dr. Pereira. In compliance with the request of Professor Matteucci, the work is most appropriately inscribed to Dr. Faraday, "to whom," as the editor justly observes, "the physical sciences are indebted for some of the most brilliant and splendid discoveries of this prolific age."

Lecture I. is introductory and treats of generalities.

> "It is perhaps the first time," says Prof. Matteucci, "that a course of lectures, under this name, has been introduced into medico-physical education. We have no work which treats exclusively of this subject: the germs, indeed, are scattered here and there, but hitherto they have never been viewed in the light most favourable to their development." (p. 2.)

Living beings are endowed with the general properties of all natural bodies. Living organized matter is extended, impenetrable, divisible, and porous. How can we believe that caloric, electricity, light, and chemical affinity, act on these beings in a manner entirely different from that which they are known to do on the other bodies of nature? Many of the differences between, and even of the presumed opposite characters of, organic and inorganic bodies, found in the works on Physiology, have little or no value.

> "Animals and vegetables grow by intussusception, minerals by juxtaposition;—in other words, in the former, growth takes place by internal juxtaposition, in the latter by external juxtaposition; for organized bodies conceal in their interior the

dissolved elements of new formations, whilst, on the contrary, these elements are situated externally in the case of inorganic bodies."—(p. 3.)

All the phenomena of living beings are, however, not explicable by reference to physical and chemical forces merely; and even *the most physical, the most chemical* phenomena of living beings exhibit considerable differences in the mode of action of physical and chemical agents in the organism, and which are as yet inexplicable by our knowledge of the laws governing these forces—as, for example, the peculiarities of vision, a purely physical phenomenon; for, how, by the aid of physical laws, can we explain the perception of a single object in its natural position, by a double and inverted image?

> "The chemical action of light, which decomposes carbonic acid, carries the carbon under the form of new combinations into the interior of vegetables, disengages the oxygen, and thus produces what the most powerful chemical affinities cannot accomplish, is certainly different from that which decomposes some oxides and metallic chlorides, an effect for the production of which the feeblest chemical actions are sufficient. Apply an electric current to the nerves of a living animal, and the peculiarity of the resulting phenomena will prove to you the immense difference which exists between the effects of the great forces of nature, according as the body in which they occur is living and organized, or inorganic and dead."—(pp. 7, 8)

What, then, is the cause of these extraordinary differences in the modes of action of physical agents on living beings and on other bodies of nature? This primary question of the highest importance, is one to which, in the existing state of our knowledge, no satisfactory reply can be given. We can only conclude that the fact of organization, and the molecular structure of living beings effect important modifications in the action of physical and chemical agents. Every day, however, adds to the number of those chemical phenomena, what are inexplicable by the ordinary laws of affinity alone—the *actions of contact or catalysis.* To this category of phenomena belong the various kinds of fermentation. And the number of catalytic actions in living beings is immense. The whole mechanism of cell-life is explained by aid of the phenomenon of endosmose alone, effected entirely under the dominion of physical forces. But, while we thus properly conclude, that living beings have the general properties of all the bodies of nature, and that these properties are influential in the production of the phenomena proper to them; that the great physical agents, caloric, light, electricity, and molecular attraction, act on living beings as well as on all the bodies of nature, and that their action must necessarily be influential in the peculiar functions of these beings; and that the general mode of action of these forces is often modified, when acting on organized matter, owing to a difference in its structure and chemical composition;—we must still admit in living beings phenomena, numerous and highly important, which we call vital, and that we are unable to explain how their production can be influenced by physical agents.

With these preliminary remarks, we shall proceed to *Lecture II.*, which is devoted to the consideration of *molecular attraction, capillary forces, and imbibition.* To comprehend the phenomena of absorption and exhalation, it is necessary to understand the purely physical phenomena of capillarity and imbibition, on account of their agency in these functions. When a body is plunged into a liquid, the latter is either elevated or depressed around the solid, and presents, at its point of contact with it, a concave, or a convex surface, according as it is either elevated or depressed. In the first case, the body is moistened, as glass when introduced into water; in the second, the body does not become wetted, as when the glass is immersed in mercury. When two bodies, sufficiently near to each other, are plunged into a liquid, the latter is either elevated or depressed, according as they are, or are not moistened by the liquid. If we plunge into a liquid, a glass tube open at both extremities, the liquid rises or falls into the tube, and the effect is greater in proportion to the smallness of the bore of the tube. It is twice as great as between the glass plates. In a tube of 1 millimetre (about $\frac{1}{25}$ of an inch) in diameter, the water rises 30 millimetres (about $1\frac{1}{5}$ inches). It will readily be admitted, that capillary actions must exercise great influence over the functions of the tissues of animals and vegetables, when we reflect that the interstices and the capillary tubes of the tissues have a diameter of from $\frac{1}{100}$ to $\frac{1}{200}$ of a millimetre, (about the $\frac{1}{2540}$ to about $\frac{1}{5080}$ of an inch). The concave surface of the elevated liquid, and the convexity of the depressed liquid, belong to a hemisphere whose diameter is equal to that of the tube. The phenomena in question are entirely independent of the volume of the solid body, and consequently the thickness of the walls of the capillary tube are without influence on them. They occur equally in air at the ordinary pressure, in condensed or rarified air, in a vacuum, and in any gaseous medium. But it is in proportion to the temperature of the liquid, and in a greater ratio than that of the diminished density produced by the heat. These elevations and depressions are independent of the density of the liquids. Thus, if we represent by 100, the elevation of water in a tube, that of alcohol will be 40, that of the volatile oil of lavender 37, and that of a saturated solution of common salt, 88. It should be remembered, too, that whatever be the height to which a liquid rises, it never overflows the upper opening of the capillary tube; for the surface of the column of liquid is always concave outwardly. These phenomena depend on that force which is called molecular attraction—a force which is exerted between the molecules of the solid and those of the liquid, and between those of the liquid itself, and which ceases to act as soon as the smallest appreciable intervals separate the molecules. It must be borne in mind that a space completely filled with liquid is incapable of exercising any capillary influence; that the action of a capillary tube on liquids is due, less to the substance of the tube, than to the nature of the liquid with which its inner surface is moistened, and finally that liquids never overflow the upper aperture of the tubes in which they are elevated by the mere agency of capillarity.

The phenomena of imbibition are the same as those of capillary action, and deserve to be more attentively studied than they have yet been. The following are the results of some of the experiments which Professor Matteucci, in conjunction with Professor Cima, made on this subject. They carefully filled six tubes of glass of two centimetres (about $\frac{3}{4}$ths of an inch) with finely-sifted and well-dried very white sand. The ends to be immersed were covered with cloth, and the tubes were then plunged at the same moment into six different liquids, at a temperature of + 12° centig., (= 53° 6′ Fahr.), to the depth of about $\frac{1}{2}$ centimetre (about $\frac{1}{6}$th of an inch); and in order that this depth should be constant, more liquid was from time to time added. The action of imbibition, by which the liquids were elevated in the tubes, was continued for ten hours; at first being rapid, but gradually becoming slower until it ultimately ceased.

"The following are the greatest heights to which the different liquids rose. All the saline solutions were of the same density, viz. 10° of Baumé's areometer [sp. gr. 1·075].

Solution of carbonate of potash	85 Mill.
Solution of sulphate of copper	75
Serum of blood	70
Solution of carbonate of ammonia	62
Distilled water	60
Solution of common salt	58
White of egg, diluted with its own volume of water	35
Milk	55

This table shows how much imbibition differs in the case of different liquids: in solutions thickened with gum, with boiled starch or with oil, scarcely any imbibition takes place; and it is also very feeble in concentrated saline solutions and in all liquids holding very finely divided particles of solid matter in suspension: in the latter case it effects a kind of filtration. This phenomenon of imbibition may, in the case of solutions holding in suspension very finely divided molecules of solid matter, be very valuable for ascertaining the different properties of the blood according to its density. In fact, in certain maladies, its density and its viscidity are much diminished; and in these cases serous infiltrations take place as they do also, for the same reasons, after profuse sanguineous discharges. We shall hereafter find that alcohol, ether, water, &c., as well as aqueous solutions, when introduced into the stomach of living animals, disappear, but in unequal intervals of time, oil remaining there for a very long period.

"Believing that it would be of importance to compare alcohol at 36° Baumé [sp. gr. 0·844] with distilled water, I provided myself with tubes filled with sand, pounded glass and sawdust, and here are the elevations that I obtained.

Tube with Sand.	Tube with pounded Glass.	Tube with Sawdust.
Alcohol, 85 millim.	175 millim.	125 millim.
Water, 175 —	182 —	60 —

"Thus we see clearly that with either sand or pounded glass alcohol rises less than water; a fact which is in accordance with that which happens with capillary tubes.

"In another experiment I plunged into the same liquid, namely, water, two tubes both holding pounded glass, but the one containing twice as much as the other; consequently the powder was finer in the first tube. The following were the results obtained:—

"In the first tube the liquid rose to 170 millimetres, in the second to 107 millimetres only in the same period."—(pp. 22–24)

The influence of temperature on imbibition is very considerable.

"Two tubes prepared with sand were plunged into water, the one at a temperature of + 55° centig. [= 131° F.], the other at + 15° centig. [= 59° F.], and the results obtained were as follow:—

	Elevation after 70 seconds.	Elevation after 11 minutes.
Tube at + 55° centig.	10 millim.	175 millim.
at + 15 —	6 —	12 —

The important part that imbibition plays in the action of the juices of plants, as well as in the phenomena of the capillary circulation of the blood in animals, is mentioned and illustrated by reference to the experiments of Hales, and the more recent ones of Boucherie. The latter saw a poplar nearly ninety-two feet in height, absorb, by its trunk, in six days, the enormous quantity of sixty-six imperial gallons of a solution of pyrolignite of iron.

The following experiments were made with the view of producing by the mere operation of capillary forces and molecular attraction the effects of chemical affinity.

"If we reflect that any kind of liquid constantly ascends to the same height in a capillary tube; that during imbibition more or less heat is produced, as the experiments of Pouillet have demonstrated; that, moreover, according to Becquerel, there is a disengagement of electricity; and, lastly, that capillary attraction is exerted at very minute distances only, and between the molecules of bodies; we cannot deny that this force combines the principal characters of chemical affinity. We know the experiment of Doebeireiner, that if a mixture of water and alcohol contained in a bladder be exposed to the air, water constantly escapes from the mixture. In this case the water is imbibed by the membrane more readily than the alcohol, and is dissipated by evaporation.

"Another and more conclusive fact is mentioned by Berzelius; a saline solution filtering through a long tube filled with sand runs out more or less, completely deprived of salt. I have confirmed this experiment by using a tube of about 8 metres [about 26 feet] long, filled with sand, and I have found that the density of the liquid, introduced by the upper aperture of the tube, was to that of the liquid escaping from the other end, as 1 : 0·91. But it is necessary to state that this difference of density was not always maintained; after a certain time, the saline solution is as dense at its exit from the tube as at its entrance. This proves that the decomposition of the saline solution takes place in the first action of contact between it and the particles of sand.

"I have obtained an inverse result by employing a solution of carbonate of soda, which I caused to pass through a tube 3 metres [nearly 10 feet] long, filled with sand. The density of the liquid at its exit was to that at its entrance as 1·005 : 1.

"The phenomena we have just referred to are very important on account of the applications that can be made of them to some of the functions of living beings which are not completely explicable by the mere action of capillarity and molecular attraction."—(Pp. 30–32.)

Lecture III. treats of *endosmose*, a phenomenon which, though exclusively within the domain of physics, is, nevertheless, intimately connected with the study of organized beings, by the physiological applications of which it is susceptible.*

Dutrochet, and Poisson, and Becquerel, have endeavoured to give an explanation of the phenomena of endosmose, but Professor Matteucci remarks, that

"Up to the present time we have not any satisfactory theory of endosmose; but we know that the general conditions of the phenomena are as follow:—1st. That the two liquids should have an affinity for the interposed membrane. 2dly. That the two liquids should have an affinity for each other, and be miscible. If one of these conditions be wanting, endosmose does not take place. Experiment proves that the current of endosmose is not produced by the least dense liquids, nor by the most viscid one, nor by that which is endowed with the greatest force of ascent in capillary tubes. The current is in general determined by the liquid which has the greatest affinity for the interposed substance, and by which it is imbibed with the greatest rapidity. In fact it is evident that the membrane imbibes the two liquids unequally; and that the one which is imbibed with the greatest facility, ought to mix with, and augment the volume of the other."—(p. 39.)

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* Dr. Pereira, in a note, claims priority for both Mr. Porrett, of London, and M. Parot, of St. Petersburgh, in the discovery of the phenomenon of Endosmose. Dutrochet's first memoir was read to the *Académie Royale des Sciences*, on the 23d of July, 1827, whilst Mr. Porrett had communicated to the editor of the *Annals of Philosophy* (vol. viii., July, 1816), a paper on two "*curious galvanic experiments*," one of which was the production of endosmose between two liquids separated by a membrane, and subjected to the action of voltaic electricity. He called the phenomenon *electro-filtration;* and asks, whether jointly with electro-chemical action, it is not "in constant operation in the minute pores and vessels of the animal system." In 1844, M. Parot communicated to the *Académie Royale des Sciences*, an inaugural dissertation, published in 1803, giving an account of the phenomena presented by two liquids of unequal density, separated by a permeable organic diaphragm, and pointing out their application to physiology and pathology.

Dutrochet found that the slightest trace of sulphuretted hydrogen destroyed endosmose; but Matteucci thinks. however, that this effect arises from the alteration of the structure of the membrane when it commences to evolve gas; for he found fresh membrane placed in contact with sulphuretted hydrogen to be very active. Dutrochet endeavoured to measure the velocity with which a liquid passes, by virtue of endosmose, from the exterior to the interior of the endosmometer; and it was made evident that the velocity of endosmose is proportional to the excess of density of the interior liquid, over that of the water employed as the exterior liquid. Among the curious facts discovered by Dutrochet, was that of the variation in the direction of the current between certain acid solutions and water, according to their density and temperature.

> "This is especially manifested by a solution of hydrochloric acid. Thus, with hydrochloric acid at the density of 1·02, endosmose takes place from the water to the acid, whilst at the density of 1·015, the current is in the opposite direction; that is to say, it is from the acid to the water."—(p. 37.)

The phenomenon of endosmose is perhaps one of the most important physical facts applicable to the functions of living beings; yet hitherto very few investigations have been undertaken with the view of connecting it with physiology.

> "To do this it was necessary to vary the liquids between which endosmose takes place, and to select the membranes, so that we might always keep as close as possible to the conditions under which the analogies between this phenomenon and those which exist in the interior of living bodies, have been observed."–(p. 41.)

To effect this inquiry, Professors Matteucci and Cima undertook a number of experiments, the results of which are highly interesting and important. The membranes which were submitted to experiment were, 1st, the skin of the frog, the torpedo, and the eel; 2d, the stomach of the lamb, the cat and the dog, and the gizzard of the fowl; and 3d, the bladder of the ox, and of the pig. The first series comprehended the experiments with the cutaneous membrane, and it was in these that the marked influence exercised upon the phenomenon of endosmose by the position of the interposed membrane, was first noticed.

> "By employing the skin of the torpedo, placed in one endosmometer with its external surface towards the interior of the instrument, and in the other reversely, and by filling the two endosmometers with a solution of gum Arabic, we observed that, whilst the liquid in the first instrument rose 30 millimetres, it rose in the second sometimes 18, and sometimes only 6 millimetres. In certain cases we saw the liquid elevated 20 millimetres or more, in the first tube, whilst it scarcely rose at all in the second.
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> "These differences are equally observed with a solution of sugar. Thus, this liquid which rises 30 and even 80 millimetres when the external surface of the skin is turned towards the instrument where the liquid is contained, rises at the utmost only 2 millimetres when the membrane is placed in the contrary direction. In one case where the first-named arrangement was adopted, the liquid rose 80 millimetres; but reached only 30 millimetres when the second arrangement was resorted to.
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> "With albuminous solutions the elevation was 26 millimetres when the external surface of the skin was in contact with it, and 13 millimetres when placed in the contrary direction."—(pp. 44, 45.)

The results obtained with the skin of the frog agreed in general with those furnished by the skin of the torpedo. In the case of the eel-skin, the elevation of the liquid was for a time alike, whichever side of the membrane was turned towards the solution of sugar; but after a lapse of two hours, in the endosmometer in which the external surface of the skin was in contact with the solution of sugar, the elevation was 30 millimetres, while in the other instrument it was only 20 millimetres. With a solution of albumen or gum water, the differences were observed from the commencement.

> "By employing water and alcohol, Dutrochet obtained the current in the direction from the former to the latter. This consequently formed an exception to all the other cases, in which he found that the direction of the current was from the least to the most dense liquid. The influence of the position of the skin, employed as the membrane interposed between these two liquids, has been rendered evident by our experiments; but the position favourable to the current, which is constantly from the water towards the alcohol, is not the same for the three kinds of skins alluded to. Thus, when we use the skin of the frog, the current is promoted from the external to the internal surface, by being directed always from the water to the alcohol. In various and frequently repeated experiments, we have observed an elevation of 20, 24, and 40 millimetres when the internal surface of the skin was placed towards the alcohol, whilst in the reverse position the corresponding elevations were only 4, 12, and 20 millimetres. Under analogous circumstances, the position of the membrane being favourable, the elevation was 28 millimetres; in the other position, on the contrary, there was no elevation. With the skin of the eel the reverse takes place. With this the current is favoured from the internal to the external surface: and whilst the alcohol contained in the instrument rises to the height of 20 millimetres, when in contact with the external surface of the skin, it only rises to 10 millimetres when the position is reversed. This difference of elevation always takes place in the same direction, and is confirmed for the eel-skin, as for the skin of the torpedo. The elevation has been at 50 millimetres in one instrument, and 20 in the other."—(pp. 47, 48.)

In the second series, the mucous membrane of the stomach of the lamb, the dog, and the cat, and the gizzard of the fowl was employed. The stomachs were taken from these animals immediately after death. The cutaneous membranes exhibited similar differences. When alcohol was employed for the inner liquid, and put successively in contact with each of the surfaces of these membranes, the differences were most remarkable.

> "With the stomachs of the lamb, the cat, and the dog, endosmose was invariably directed from the water to alcohol, and was promoted from the internal to the external surface of the membrane. Indeed, we have seen in the endosmometer where the external surface of the mucous membrane of the stomach of the lamb was turned towards the interior of the instrument which contained alcohol, the elevation attained 88 millimetres, and only 10 millimetres in the contrary position; afterwards the liquid in the first endosmometer rose 40 other millimetres, and remained stationary, and sometimes even fell in the second instrument.
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> "With the stomach of the cat, alcohol rose 22 millimetres in the tube in two hours, when the external surface of the membrane was turned towards the interior of the endosmometer, but with a contrary arrangement it did not rise more than 2 millimetres. Sometimes even when, in the first position of the membrane, the elevation was from 20 to 24 millimetres, in the second there was no elevation. With the stomach of the dog, the elevation of alcohol in the tube was 24 millimetres when the mucous surface was in contact with water, but was only 16 millimetres when placed in the reverse position. Six hours after, the liquid rose again 40 other millimetres in the first case, and 25 millimetres only in the second one. In another experiment, after the time mentioned, the elevations were 130 millimetres and 6 millimetres. With the stomachs which we have hitherto employed, endosmose, which is promoted from the internal to the external surface of the membrane, always takes place from water to alcohol, as in Dutrochet's experiments. It is remarkable that, with the internal membrane of the gizzard of

> the fowl, endosmose takes place in the contrary way, namely, from alcohol to water; and this holds good whatever be the position of the membrane with respect to the two liquids. This exception, which we at first attributed to some defect in the membrane employed, we have repeatedly verified, sometimes by introducing, as usual, the alcohol into the interior of the instrument, in which case we have seen the alcohol fall below the level, and sometimes by placing it externally, when the water constantly mounted in the tube. The influence of the position of the membrane is equally evident in this case. We shall commence by giving the diminutions of height marked in the case where the alcohol was in the interior of the instrument. When the internal surface of the mucous membrane was towards the interior of the endosmometer, the diminution of the height of the alcohol was from 24 to 28, and even more than this, in the space of six hours, whilst it was only 11 and 12 millimetres in the other position. In another experiment, which we have selected out of a very large number, the pure water being placed in the interior of the instrument, the elevation was 32 millimetres when the external surface of the membrane was towards the interior of the endosmometer, and 16 millimetres in the other position, in about the space of three hours. Consequently endosmose between alcohol is promoted from the internal surface to the external surface of the gizzard of the fowl."—(pp. 58, 59, 60)

In the third series the mucous membrane of the bladder of the ox, in a fresh state, was employed. The height which a solution of sugar attained

> "Was, when the internal surface of the membrane was in contact with the saccharine liquid, 80, and even 113, millimetres in the space of two hours; but it was only 63, or 72, millimetres when the position of the membrane was reversed. The current of endosmose, therefore, is promoted in this instance from the external to the internal surface of the membrane. The contrary effect is obtained with a solution of gum Arabic. The elevation is 18, and sometimes only 7, millimetres, when the internal surface is turned towards the interior of the instrument containing the gum solution; whereas, when the membrane is arranged the reverse way, the elevation is 52 millimetres, or, in some cases, 20 millimetres."—(p. 61.)

With the gummy solution, the liquid sometimes first fell in both tubes, and after some time, rose to nearly the same heights as those observed with the saccharine liquid. With an albuminous solution and pure water, no endosmose took place; the liquid falling in both tubes, whether the interior of the instrument contained the albuminous solution or pure water.

> "Yet it should be mentioned, that when the inner surface of the membrane is in contact with the albuminous solution placed outside the instrument, the diminution of height is less than when the position is reversed; and that the contrary takes place when this solution is in contact with the external surface of the membrane. Lastly, with alcohol and pure water there is endosmose from the water to the alcohol, as in most cases; but the elevation is sometimes 24 millimetres, sometimes 59 millimetres, when the external surface of the membrane is in contact with the alcohol, and sometimes 26, or 37, millimetres in the reverse arrangement."—(pp. 61, 62.)

These phenomena were all more or less modified when the membrane used had undergone more or less the putrefactive process; thus demonstrating the intimate relation existing between the phenomenon of endosmose and the physiological condition of the membranes.

> "The phenomenon of endosmose, like everything going on in organized tissues, is devoid of that constancy and regularity observed in physical phenomena elsewhere. To this variable and accidental organic condition of the fresh membranes must be ascribed the singular fact, that while in certain cases we obtain an elevation of perhaps 80 millimetres, yet sometimes with the same liquid, the same membrane, and in the same relative position, the rise does not exceed 10 millimetres. We must also ascribe to a constant anatomico-physiological condition, connected with the function of the same membrane, that constant difference of

elevation in the two different positions of the membrane, whatever this difference may in other respects be. It is important to study the phenomenon with the view of recognizing the accidental circumstances which cause the variation of endosmose through the fresh membranes; as, for example, the privation of nourishment in relation to the stomach, the administration of certain substances to the animal before killing it, &c."—(p. 64–65.)

On the subject of *exosmose*, Professor Matteucci observes:—

"That in ascribing everything to endosmose, the presence of the solution of gum, or of sugar, in the interior of the endosmometer, gives us no explanation of the phenomena which are observed with the internal membrane of the stomach of the lamb, and with the mucous membrane of the bladder of the ox; and that these phenomena are susceptible of a more easy and natural explanation, by assuming that, by exosmose, the various membranes give to the different liquids a more or less easy passage towards the water, according to the surface with which these liquids are in contact; and by supposing that the passage of the water towards the denser liquid is always constant, in accordance with the almost general law of endosmose."—(p. 67.)

But to ascertain the correctness of these views, it was necessary to resort to experiment, and not only to prove the existence of exosmose, but also, to measure it in the same manner as exosmose. A number of interesting experiments were undertaken, and their results are given. When equal volumes of salt water of known density was introduced in two endosmometers, in one of which the internal surface of the skin of the eel or frog was placed towards the interior of the vessel, and in the other, was in the contrary position, were plunged into two vessels of distilled water of the same volume as the salt water, it was

"Observed that endosmose from water to a saline solution through these skins, was most promoted from the internal to the external surface. By determining the density of the liquids contained in the two vessels, we found that in the endosmometer, *in which the volume of salt water was most increased, the density of the liquid was preserved better than in the other; and* vice versâ, *in the vessel in which the diminution of distilled water was greatest, the quantity of the saline solution introduced by exosmose was less than in the other vessel from which a smaller volume of distilled water had disappeared.*"—(p. 68.)

A similar result was observed with the solution of sugar and the skin of the eel.

"These facts cannot be explained by assuming that the elevation and increase of volume of the liquid of the two endosmometers arise merely from the difference between the current of endosmose and that of exosmose. If it were so, the endosmometer in which the largest quantity of saline solution had accumulated, ought to contain a liquid less dense than that in the other which presented a less augmentation of volume. These facts may be, on the contrary, completely explained, by assuming that the current of endosmose has been equal, or nearly so, in the two positions of the membrane, and that the difference depends altogether in the current of exosmose, which is weakest in that endosmometer in which the elevation is most considerable, and stronger in the one in which the elevation is the slightest. These results give a great importance to the influence of the membrane interposed between the two liquids in the phenomenon of endosmose; for, by its particular nature alone and its physiological function, we can explain the more or less easy passage of different denser liquids towards other less dense ones through the membrane itself."—(pp. 70, 71)

In all the skins experimented on, the exosmose of solutions of sugar, albumen and gum, towards water, is promoted from the internal to the external surface.

"It is precisely in this same direction through the skin of the torpedo, the eel, the frog, and other animals, that a copious secretion of mucus takes place. The endosmose of water to a solution of sugar, of gum, and of albumen, is less intense from the external to the internal surface of the skin than when it takes place by the reverse arrangement. Consequently, if we do not admit that this secretion of mucus, and this weak absorption of the water wherein these animals live (functions which, for their normal performance, ought always to bear a certain relation to each other), are entirely due to the phenomena we have discovered; at all events, we cannot deny that they must be promoted by it. Undoubtedly this function of the skin would not go on, or would do so imperfectly, if in these animals which live constantly in water, this membrane acted endosmotically in an opposite direction to that which we have found it to do.

"This constancy observed in the direction most favourable for endosmose and exosmose through skins, does not hold good for the mucous membrane of the stomach of different animals. But every one knows how much more complicated the function of the stomach is, and that all the substances introduced into this organ are either not absorbed, or are absorbed unequally. Moreover, we repeat, that this subject requires elucidation by fresh experiments. When we remark that the direction most favourable to endosmose between water and a saccharine solution, for example, is not the same for the stomach of a ruminant as for the stomach of a carnivorous animal; it clearly follows that the phenomenon of endosmose must be intimately connected with the great differences which exist in the digestive functions of these two orders of animals."—(pp. 71, 72.)

The recent experiments of Poiseuille, made with the view of explaining by endosmose the purgative action of certain saline substances, are next referred to. He found that there was endosmose through animal tissues from the serum of the blood to Seidlitz water, and to solutions of the sulphate of soda and common salt. Now this is precisely what happens on the internal administration of these medicines; the excrements contain a large amount of albumen; and we must admit, that endosmose takes place through the capillary vessels of the intestine, from the serum of the blood to the saline solution introduced into the alimentary canal. To substantiate Poiseuille's views, it was necessary to demonstrate that endosmose occurs when one of the liquids is in motion, and is being continually renewed. This has been done by Dr. Bacchetti, who has shown that the rapidity of endosmose is considerably augmented when one of the liquids was constantly renewed. This result is in accordance with the principles of the theory of endosmose; for the constant interchange of the same liquids through the membrane suspends, finally, endosmose. Poiseuille has, also, shown that endosmose ceases to take place in a membrane after a certain time of action; but that the membrane reacquires this property, by submitting it to the action of other liquids.

The influence exercised on endosmose, by the hydrochlorate of morphia, is another remarkable and valuable fact, for which we are indebted to Poiseuille and Bachetti. This salt, when added to saline solutions, weakens considerably the endosmose from the serum to the solution, and ultimately changes the direction of the current.

"How," inquires Professor Matteucci, "can we make an entire abstraction of this fact in the explanation of the action of morphia, and of the preparations of opium in diarrhœa, as well as of the constipation which they produce?"—(p. 74.)

Lecture IV.—Absorption and *exhalation* in animals and plants are considered, the preceding lectures on the phenomena of capillarity, imbibition, and endosmose, having prepared the way for their study. Absorption in animals, consists of two acts—imbibition and transmission; the substance to be absorbed is not only to be introduced through the interstices of an organized body, but it is to pass into the circulation, the final object of the phenomenon. If a frog, whose inferior extremities only have been immersed in a solution of ferrocyanide of potassium, be, after careful washing, cut in pieces, by touching any part with a glass rod, moistened with muriated tincture of iron, a blue stain is produced, proving that the solution has penetrated every part. If a living frog be treated in the same way and then killed, scarcely any traces of the salt can be detected in the muscles of the legs and thighs (the immersed parts), whilst the heart and lungs give distinct evidence of its presence.

> "One experiment more, and the conclusion will be evident. I immerse another frog, which has been dead for some minutes, in the same solution, and leave it there for the same time that I did the other. When tested, the lungs and heart offer no greater evidences of the presence of the ferrocyanide than does any other part of the body. Here is the explanation of these experiments:—The solution was introduced into the body of the frog simply by imbibition; and this phenomenon, being effected in the living as well as in the dead frog, certainly cannot be regarded as different from the imbibition which we have already studied, which belongs to both organic and inorganic bodies, and which is the consequence of their cellular and vascular structure, &c. But there is something more than this. In the heart and lungs of a living frog we find a much larger quantity of the absorbed solution than in the other parts of the body, although these latter were much nearer the part immersed. These viscera are the centre of the circulatory system: in them commence or terminate the trunks of the blood-vessels. The solution of the ferrocyanide, therefore, has penetrated the blood-vessels by imbibition, mingled with the blood, and thus arrived at the heart and lungs. We have another very simple experiment proving the same facts:—I take two frogs, and from one remove the heart; the animals are equally lively. Both are placed in a large glass containing a solution of the extract of nux vomica. The animal with the heart is soon poisoned, and long before the other becomes affected."—(pp. 77, 78.)

All vessels absorb; the lymphatics as well as the blood-vessels. That absorption is a physical phenomenon, is not only shown by the conditions under which it takes place, but also by positive experiment. Take a long piece of vein from any large animal, and attach it at one end to a tube in the lower part of the side of a glass bottle filled with water, and tie the other extremity to a small bent glass tube, furnished with a stop-cock; immerse a portion of the vein in water, accidulated with sulphuric or hydrochloric acid. At first the liquid within the bottle gives no indication of the presence of the acid; but if the stop-cock be opened, the liquid which flows out through the veins is acid. After some time the fluid in the bottle is found also to be acidulated. If a tube of clay or of pasteboard, or of wood be substituted, the same happens. If the acidulated solution be contained in the interior of the vein; and if litmus be added to pure water in the basin, the same phenomenon is observed; and the acid will pass out through the coats of the vein, with a facility proportionate to the velocity of the current.

> "Suppose for a moment that the direction of the circulation of the blood was inverse to that which it really is, but without any alteration in the structure and disposition of the blood-vessels; we should then no longer say that the veins absorbed, but, on the contrary, that absorption took place by the arteries. Such is the very simple physical phenomenon of this function."—(p. 83.)

The laws of absorption are next very happily illustrated by the application of the principles previously laid down.

The function of *exhalation* is, in general, effected by the same mechanism, and under the same laws as those of absorption. In every vessel capable of imbibition, a portion of the contained liquid is constantly passing out or *exhaling* through its coats, in proportion to the greater or less facility with which it is imbibed by the tissue of the vessel, and the greater or less moisture of the sides of the vessel. The exhalation will be augmented if, in consequence of the very large quantity of contained liquid, the walls of the vessel are subjected to increased pressure. Edwards has proved, that cutaneous exhalation is, in some cases, ten times greater in dry than in moist air, and that it is doubled in passing from 32° Fahr. to 68°. He also found that transpiration was augmented by agitating the air around the body of an animal.

"Some of the phenomena of absorption and exhalation in living beings, are accomplished by the transformation of absorbed or exhaled body. The liquid which is imbibed by a membrane, and exhaled from its opposite surface, is not identical with that which was placed in contact with the absorbing membrane. This happens in most of the cases of exhalation, and principally in the secretions. We are very far from expecting to find, in the present condition of physico chemical knowledge, an explanation of the phenomena of the secretions. We must admit that they form as yet one of the most obscure subjects of the animal economy. With respect to exhalation it may be observed, that in some cases it is effected by a kind of filtration. A liquid which contains in suspension insoluble particles, is separated by filtration into two portions: the liquid part, which is imbibed by the substance of the filter, and is strained; and the solid part, which remains on the filter. Anatomists know that by injecting into the veins or arteries a solution of gelatine coloured by very finely powdered vermilion, the solution becomes colourless when it percolates through the coats of the vessels. Every contusion of the skin produces a spot, the centre of which is of a dark blue, and the circumference of a green colour surrounded by yellow. In this case, the extravasated clot of blood is separated from the serum, which is imbibed by the neighbouring tissues. Do not forget the fact which has been demonstrated to you respecting imbibition. Salt water becomes fresh by traversing a bed of sand; while a solution of carbonate of soda, filtered under the same conditions, becomes denser. Imbibition, capillarity, and the simple play of molecular attraction, can overcome affinities. The old notion, therefore, according to which the secreting organs were considered as mere filtering apparatus, is not entirely without foundation."—(pp. 88, 90.)

The lecture concludes with a sketch of absorption in plants. Prof. Matteucci admits that the movement of the juices of plants is inexplicable by capillarity and imbibition merely.

"The cause resides principally in the roots, and in the next place in the leaves. It is probable that an action of endosmose occurs in the extremity of the roots; and it is not unnatural to suppose that a similar cause acts in the movements of the chyle and lymph in the lymphatic and chyliferous vessels; a movement which continues some time after death."—(p. 96.)

Lecture V. treats of Digestion; it is an able summary of that subject, and contains some original researches of the author on the *absorption of fat.*

"It is difficult to determine precisely by analogies derived from chemistry, what becomes of the fatty substances after they have passed out of the stomach. It is certain that they are there absorbed, and that the chyliferous vessels may be considered as almost exclusively charged with this function. Here are some experiments, by means of which I have endeavoured to diminish the obscurity which hangs over this part of the digestive process. I put into a mattrass a solution of 300 grammes [= 9 oz. 132 grs. troy] of distilled water, $1\frac{3}{10}$ grammes [about 20 grains troy] of caustic potash. This solution has not any perceptible alkaline taste, and acts very feebly on litmus paper; it is a liquid whose alkalinity is about equal to that of the lymph and chyle. By means of a salt water bath, I expose the mattrass to a temperature of from 35° to 40° centig. [= 95° to 104° Fahr.]; I then add some drops of olive oil and shake the mixture: it instantly becomes so milky that it might be mistaken for milk itself. The liquid thus obtained, when left to itself, preserves its analogy to milk, and separates into two layers, the one more opaque at the top, in which are evidently small globules of fatty matter; the other, below, and less opaque, although still having a milky aspect. I have filled a piece of intestine with this species of emulsion, and plunged it into the alkaline solution already described, whose temperature was maintained at from + 35° to 40° centig. [= 95° to 104° Fahr.] After some time the latter becomes turbid, and acquires the characters of the interior emulsion. We, therefore, presume, that a portion of the emulsion has passed through the membrane and become diffused externally. I may mention to you another experiment which appears to me still more conclusive. I filled an endosmometer with a very weak alkaline solution, and plunged it into the emulsion. The membrane employed was, as usual. ox bladder, and the two liquids were at the temperature of + 30° centig. at the commencement of the experiment. Endosmose took place; the emulsion passed into the alkaline solution; and the liquid rose in the tube to the height of 30 millimeters in a very short time. These physical phenomena, which, although they do not explain all the peculiarities of the digestion of fatty substances, nevertheless contribute to render them less obscure. The chyliferous vessels, which terminate in closed or blind extremities (*en cul-de-sac*), and are enveloped by intestinal mucus, are, especially in a fasting animal, filled with an alkaline liquid, very analogous to lymph. After digestion, particularly when the animal has been fed on fatty substances, the liquid of the chyliferous vessels differs from what it was previously, merely by the addition of fatty corpuscles, which give it the milky appearance. It is natural to suppose, that this chemical affinity, which produces the milky liquid in the mixture of the alkaline solution and oil, is also exerted through the membrane of the chyliferous vessels, which certainly imbibes as much of the alkaline solution as of the milky liquid, formed by the action of the alkali on the fatty bodies. The phenomena of endosmose, of which I have spoken, may also be admitted, with great probability, as one of the causes which produce absorption by the chyliferous vessels. It is certain, that absorption could not take place, if the inner sides of the intestines were not bathed with some liquid, for which the fatty bodies had some affinity. It is easy to demonstrate, by experiments, that the alkaline condition of the intestinal coats favours this absorption. Fill two funnels with sand, equally shaken down in each. Pour into one, pure water, into the other, an alkaline solution: when the liquids have filtered through, pour an equal quantity of oil on each filter. For several hours the oil will remain upon the surface of the sand, which has been moistened with pure water; whilst in the other funnel, in which the sand has been moistened with the alkaline solution, the oil will rapidly disappear by imbibition. The neutral azotized substances which pass into the blood, after having been dissolved by the gastric juice, would rapidly destroy the neutral or slightly alkaline condition necessary to the preservation of the qualities of the blood; but the alkali of the chyle, of the lymph, of the bile, and of the pancreatic fluid, preserve the neutrality of it."—(pp. 111, 112, 113.)

Lectures VI. and VII., devoted to the consideration of *respiration*, *sanguification*, *nutrition*, and *animal heat*, contain much that is interesting and important, though but few original observations, and need not, therefore, detain us, as our object is chiefly to present to the reader the original researches of Prof. Matteucci himself.

Lecture VIII., on the Phosphorescence of Organized Beings, contains some highly interesting observations on the *Lampyris Italica* or *Italian glow-worm*, the last two segments of whose body, which by day appear yellowish, are slightly luminous in the dusk, and during the night evolve a bright intermittent light. This yellowish matter continues to emit light when separated from the body of the animal. The following are some of the conclusions which Prof. Matteucci arrived at in studying the phosphorescence of the glow-worm.

"1st. The phosphorescence of the glow-worm may cease, without the insect being dead.

"2d. There exists in this insect a matter which evolves light, without any appreciable heat; and the animal to manifest this property, does not necessarily require either to be entire, or to possess life.

"3d. Carbonic acid and hydrogen form a medium in which the phosphorescent matter of the glow-worm ceases to shine after an interval of time, not exceeding thirty or forty minutes, provided that the gases are pure.

"4th. In oxygen gas, the brilliancy of the phosphorescent matter is considerably greater than in atmospheric air, and the duration of the phosphorescence is nearly three times as long. This holds good with regard to the luminous segments only, as well as with the entire animal.

"5th. This phosphorescent matter, placed under conditions suitable for the emission of light, absorbs a portion of oxygen, which is replaced by an equal volume of carbonic acid.

"6th. This same substance, when deprived of its faculty of glowing, and then placed in contact with oxygen gas, no longer absorbs oxygen, or produces carbonic acid.

"7th. Oxygen mixed with either hydrogen or carbonic acid, in the proportion of 1 to 9, forms a medium in which the phosphorescence continues for several hours. We may, therefore, conclude, that it is in consequence of some alteration in the phosphorescent matter, that this ceases to glow after it has been for some days in pure oxygen, one portion only of which has been replaced by carbonic acid.

"I examined the hydrogen, in which I had kept several glow-worms for the space of twenty-four hours, and in which they had glowed for a few minutes only. The following is the result obtained when the gas was pure, and the experiment was conducted over mercury; the bell-glass being carefully filled by inverting it two or three times, in order to get rid of all the air adhering to the glow-worms: the volume of the gas was slightly augmented: with 8 cubic centimetres of hydrogen, I obtained an excess of 0·2 cubic centim. which was absorbed by potash. Thus, then, the insects produce carbonic acid, which must either be formed by the union of carbon with the oxygen remaining in the tracheæ, or exist ready formed in the animals. When the luminous segments alone are placed in hydrogen, with due precaution, they glow for a few seconds only and the gas is not altered.

"8th. Heat, within certain limits, augments the light of the phosphorescent matter; cold has a reverse effect.

"9th. When the heat is too strong, the phosphorescent matter becomes altered, as it also does when placed in the air or in any gas whatever for a certain length of time. This undoubtedly is the reason why these insects cannot live in all climates, and why they shine only during certain months of the year.

"10th. The phosphorescent matter, when thus altered, is no longer capable of emitting light or of becoming luminous.

"These conclusions evidently prove the nature of the phenomenon: the production of light, by this insect, is essentially connected with the combination of oxygon with carbon, which is one of the elements of the phosphorescent matter." (pp. 174, 175, 176.)

Prof. Matteucci examined the structure of the luminous organ with the microscope. He found

"On the removal of the luminous segments of the dorsal and abdominal membranes, there was perceived a yellowish, granular, globuliform matter, in which appeared groups of red globules, a great number of ramifications, and, moreover, a species of tubes which had the appearance of muscular fibre, but which, when closely examined, appeared hollow. By looking at them at night, the light was seen to be emitted by the granular yellow matter; and when we compressed this between two glasses, the light was always observed on the edges of the examined portion. The abdominal membrane examined alone, after it has been washed several times in water in order to remove from it all the phosphorescent matter, is transparent, and furnished with a great number of hairs. The dorsal membrane, less transparent than the former, is likewise hairy, but it is also supplied, on its internal surface, with many tubes or tracheæ, which penetrate the phosphorescent matter. I must further add, that I never separated the abdomen of a glow-worm without finding under the last luminous ring but one, a bright red vesicle, which, viewed by the microscope, is found to be made up of a group of red globules. I have never met with this vesicle in other insects of the same genus, and no work on comparative anatomy mentions it. In my ignorance of this science I content myself with announcing to zoologists the presence of this body."—(pp. 180, 181.)

The phosphorescent matter, taken from a living animal, has a remarkable odour, resembling that of the sweat of the feet. It is neither acid nor alkaline; dries readily in the air; appears to coagulate on contact with diluted acids; does not dissolve either in alcohol or ether, or in weak alkaline solutions.

"It dissolves and becomes changed, in hot concentrated hydrochloric and sulphuric acids. By the employment of the last-mentioned acid, the solution does not become blue, which fact excludes the idea of the presence of albumen. Heated in a tube, it gives out the usual ammoniacal products. It does not present any obvious trace of phosphorus; of this fact I have assured myself, by calcining this matter several times with nitre in a platinum crucible, and by treating the dissolved residue with the tests which indicate the presence of the phosphates. From all that we have now stated, we can no longer regard the presence of phosphorus as the cause of the light in these insects. Perhaps by operating on a large number, we might succeed in discovering a slight trace of phosphorus, which is usually found in all organized substances. From all these experiments, I conclude that carbonic acid is produced by the contact with oxygen of the phosphorescent matter alone, separated from the rest of the animal; that the light ceases to be produced when this gas is not present, and that by the contact of the latter, light and a volume of carbonic acid, equal to that of the oxygen consumed, are produced; and that the phosphorescent substance of this insect, when not luminous, does not act on oxygen. It is, therefore, natural to suppose, that in the luminous segments of these animals, enveloped by transparent membranes, and by means of the numerous tracheæ discovered here and there in these animals, atmospheric oxygen is brought in contact with a substance, *sui generis*, principally composed of carbon, hydrogen, oxygen, and azote. The presence of a great number of dispersed blood-globules intermixed with the granular luminous matter, proves that these segments are the centre of a peculiar organ of secretion; and I believe that this red vesicle, which I have described as existing above the luminous segments, merits the attention of naturalists."—(pp. 182, 183.)

Lecture IX. treats of the *electrical current of muscles.* Prof. Matteucci, as most of our readers are no doubt aware, has devoted much zeal and labour to the investigation of animal electricity, and to the results of those investigations he owes much of his present celebrity.

Amongst the chemical actions of living beings, we have not only heat and light, but also electricity; and the existence of an electrical current is readily proved, when in connecting, by means of a conducting body, two different parts of the same muscular mass of a living or recently killed animal. The indicator or galvanoscope used by Prof. Matteucci is the leg of a frog, to which is attached the crural nerve and lumbar plexus; the muscles of the thigh having been carefully removed. The leg thus prepared is introduced into a glass tube, covered with an insulating varnish; the nervous filament projecting. With this instrument we can conduct our researches on the electric current. For, on applying one extremity of the nerve to the bottom of the wound, and another portion of the nerve to the lips of the wound, or, better still, to the external surface of the muscle, the frog's leg continually contracts; thus demonstrating the presence of an electrical current, which circulates in the nerve, since it is necessary to form a circuit, of which the nerve is a part. This phenomenon takes place in all animals warm or cold blooded. Our author has recently proved that the galvanoscopic frog exhibits the same signs when we operate on a wound made in the human muscle. If the nerve of the frog, or different portions of the muscle, be moistened with a saline or acid solution, or, still better, with an alkaline one, the contractions of the frog's leg are more energetic.

Contractions are also produced in the frog when we bring the nerve in contact with a muscle separated from the animal. The direction of the current is demonstrated to be invariably from the internal part to the surface of the muscle. To study better the fundamental laws of the electrical current, Prof. Matteucci constructed with the demi-thighs of frogs a *muscular pile*, one extremity of which was formed by the external surface of the muscle, and the other by the internal. Two cups were filled with a weak saline solution, and the two extremities of the galvanometer were plunged into them, and a deviation of the needle was immediately observed. The muscles of other animals, of fishes, birds, or mammals, may be substituted for those of the frog; and, provided that the relative position of the muscular elements be such as just indicated,—the internal surface of the muscle next to the external—more or less deviation of the needle of the galvanometer will be obtained. The intensity of the current is in proportion to the number of demi-thighs employed to form the pile. Prof. Matteucci endeavoured to ascertain whether the other tissues and organs of animals,—the membranes, the nerves, the brain, the liver, and the lungs,—denoted the presence of an electric current; but he invariably obtained very feeble signs of it. The heart alone gave indications of a very strong current. This property does not depend on the nervous system, for if the nerves which supply the muscles be destroyed, the latter do not lose their property of manifesting the electrical current. The origin of this current resides in the electric conditions, which are produced by the chemical actions of the nutrition of the muscle. The blood charged with oxygen, and the muscular fibre, which becomes transformed on contact with this liquid, compose the elements of a pile: they are the liquid acid and zinc.

> "In the normal condition of the muscle, there can only be molecular currents produced by the formation and destruction of opposite electrical conditions in the same points; but if a great number of points of the muscular fibre be put, by means of a good conductor, in communication with others of a different nature, which do not suffer the same chemical action on the part of the blood, the electric current should then circulate. It is this fact, furnished to us by experiment, which proves at the same time the development of electricity in the living muscle, and the impossibility for the electric current to circulate in the masses of this muscle in the natural condition."—(pp. 200, 201.)

The influence of the organic condition of the muscle is considerable. The current is less intense in the muscles of animals which have been kept without food, or in which the blood circulates feebly, or has ceased to circulate. On the contrary, in muscles, which have been for some time the seat of inflammation, or have been gorged with blood, or belong to animals that have been well fed, the muscular current shows more intensity, and continues for a longer period. The intensity of the current was not affected in frogs poisoned by carbonic acid, hydrocyanic acid, and arseniuretted hydrogen. The influence of sulphuretted hydrogen is, on the contrary, very marked; a dead animal, in an atmosphere of sulphuretted hydrogen, almost entirely loses the property.

Lecture X. on *Electric Fishes*, and the *Proper Current of the Frog;* and *Lecture XI.* on the *Physiological Action of Gravity, Light* and *Caloric*, which contains nothing new, we shall pass over. *Lectures XII. and XIII.* treat of the *Physiological Action of the Electric Current.*

Statical electricity produces no phenomenon on living beings peculiar to them, or different from those offered by inorganic bodies when submitted to the same influence. Such is not the case, however, with respect to the action of dynamical electricity. The assumption of Galvani of the existence of an *animal electricity*, which the metallic arc merely discharged, though abandoned after Volta's experiments with the condensing electrometer, is now regarded as far from erroneous. But the contractions excited in the frog, or in any living or recently killed animal, when one of its nerves is traversed by the electric current, are quite independent of all animal electricity. If you expose the sciatic nerve in both thighs of a rabbit, separating it as much as possible from the surrounding parts, then wipe it with some unsized paper, and introduce beneath it a band of gummed taffeta to insulate it completely from the surrounding parts, and then transmit the current from a pile of ten elements along the nerve, at the moment the circle is closed, the muscles of the thigh will contract, the animal will utter cries, and the ears be agitated. These effects are repeated when the circuit is opened, by interrupting the communication of the conductors with the nerve. This phenomenon occurs whether the direction of the current be direct or inverse. Whilst the circuit remains closed no effect is perceived.

> "Whatever be the direction of the current in the nerves, it gives rise, both at its commencement and at its interruption, to analogous phenomena; but we constantly observe, that the most violent contractions are those which are excited during the first moments of the passage of the direct current. Marianini observed, that if a man close the circuit of a pile composed of a certain number of elements, by touching one pole with one hand, and the opposite pole with the other hand, the strongest shock is always felt in that arm in which the direct current circulates.
>
> "If we continue to experiment upon the same animal, all these phenomena more or less rapidly cease, according to the greater or less energy of the current, and the animal gives no further evidence of the passage of it. If the animal be then left undisturbed for some time, or, if we augment the force of the battery, the previous phenomena reappear.
>
> "But it is important to follow carefully the phenomena which take place in proportion as the action of the current upon the animal is prolonged, and before they completely cease. You will observe that, when the direct current is interrupted, the contractions of the inferior muscles (those which are placed below that part of the nerve to which it is applied) become more feeble, whereas they continue in the muscles of the back, and the agitation, and often the cries, of the animal continue. We see, also, that for the first few moments of the passage of the current, its effects are limited to contractions of the inferior muscles. When the current is reversed, the contractions of the muscles of the back, the movements of the ears, and the cries, are not manifested except at the moment of closing the circuit; while the contractions of the inferior muscles are scarcely perceptible. But the opposite effect takes place when we interrupt the circuit: that is to say, the contractions of these latter mucles continue, whilst those of the back, and the movements of the ears disappear, and the animal ceases to utter cries."
> —(pp. 246, 247.)

We must, therefore, divide into two different periods the action of the electric current on the nerves of a living animal. The current acts in the direction in which it is transmitted, when it begins to circulate in the nerve, and in the opposite direction when it ceases to circulate. If you divide transversely the spinal marrow of a rabbit, and pass an electric current along the crural nerve, the muscles situated below the point of division only contract; and if the division was effected near its inferior extremity, no contractions will occur in the muscles situated above the excited nerve.

"The contractions excited in the muscles situated above the irritated nerve by an electric current, are then *reflex movements.* The excitation of this nerve is transmitted to the spinal marrow, and the latter, by a reflected action, produces contractions of muscles not supplied by the nerve irritated by the current. We may, therefore, say, in the language of Dr. Marshal Hall and other modern physiologists, that the electric excitation of a nerve which was at first centripetal, is transformed into a centrifugal one." * *

"By submitting recently killed rabbits, prepared as in the preceding experiments, to the influence of a single element, we obtain the contraction of the inferior muscles, at the moment when the circuit of the direct current is closed, and when that of the inverse current is interrupted. By acting with a more powerful battery, the contractions of the same muscles take place as well when the current begins to circulate as when it ceases, whichever its direction may be. After it has continued to pass for a certain time, contractions no longer ensue, except at the commencement of the direct, or at the cessation of the inverse current."—(p. 249.)

These phenomena may be verified by preparing a frog according to Galvani's method, and from which the bones of the pelvis, and the lumbar vertebra have been removed. The frog is so placed that each foot shall be in a glass of water.

"When I plunge the two conductors of a pile into these glasses, you will at first observe that the frog will leap out; and if we retain it forcibly in its place, contractions take place in both legs both when opening and closing the circuit, and, consequently, in the limb in which the current is direct, as well as in that in which it is inverse. But if we continue the experiment, we soon perceive the alteration already described; that is to say, at the moment when the circuit is completed, one limb only contracts, namely, that in which the current is direct; while, on the contrary, when we interrupt the circuit, the contraction takes place in the other limb, namely, in the one traversed by the inverse current. This series of phenomena is manifested, more or less speedily, according to the strength of the current, and the vivacity of the animal, but it is never absent. Thus, then, the frog is not only a galvanoscope of extreme sensibility, but it is also an instrument which may perform the office of a galvanometer, and like this, indicate the direction of the current which circulates in a portion of its nerves." —(pp. 250, 251.)

Professor Matteucci next examined the action of the electrical current on muscular fibre alone, by depriving a muscle as carefully as possible of its nervous filaments; and he found that it excited contractions of the muscular mass, both when the circuit is closed and when it is interrupted, whatever may be the direction of the current relatively to that of the muscular fibres; and, also, that the contractions which take place when the circuit is opened, are the first to disappear.

"If the discharge be that of a Leyden bottle, which is made to pass across a muscle,—for example, the gastrocnemius of a frog,—it is curious to observe that the muscle contracts and continues in that state."—(p. 253.)

It remains now to notice the various circumstances which modify the action of the current on the nerves and muscles of living, or recently killed animals.

"The *voltaic alternatives,* of which I am now about to speak, are the result of the same passage of the current in the nerve. Observe in what this phenomenon consists. We put a frog, prepared in the usual way, across two small glasses, containing pure, or slightly saline water, in such a way that the spinal marrow is immersed in one glass, and the legs in the other. We then close the circuit. If we allow the current to circulate for a certain time, say twenty or thirty minutes, according to the strength of the current, and then open it and close it again, no further contractions are obtained. But by reversing the direction of the current, the contractions re-appear; and they cease again, more speedily than in the preceding one, when the passage of the current has been prolonged. By again reversing the direction of the current, that is, by re-establishing it as it was at the commencement of the experiment, the contractions reappear. These alternations may be repeated a certain number of times on the same animal. The intervals of time between the passage of the two currents, depend on the intensity of the current and the vivacity of the animal. It is easy to prove that the diminution of the excitability of the nerve from the passage of the current, is principally manifested in the portion traversed by the latter. Suppose we have passed a current through the nerve of a frog prepared after Galvani's method, and have prolonged the action until the contractions have ceased; if we then apply the conductors to a portion of the nerve more distant from the brain than that on which we first acted, we soon observe the contractions re-appear according to the laws already laid down. By continuing these experiments, exposing successive portions of the nerve more distant from the brain, similar results are obtained. We may therefore say, that the excitability of the nerve, roused by the current, retires towards the periphery according as its vitality becomes extinct. When we act on a living animal in the way described, we find that the signs of pain evinced when an electric current traverses its nerves, are also manifested when we act on those parts of the latter, nearer and nearer to the brain, according as its vivacity diminishes by the prolonged passage of the current. In both cases, it is the excitability of the nerve which becomes weakened by the passage of the current; and, as when a muscular mass is traversed by the latter, it is certain that the whole, or at least the greater part of the current passes, not by nervous filaments, but by the muscles, which are better conductors, it is natural that these filaments should preserve their excitability, and that they should be found also excitable by the current."—(pp. 253, 254, 255.)

Animals killed by hydrogen, azote, carbonic acid, and chlorine, present no difference, when the electric current is passed through their nerves, from animals dead of or from other causes. But when they are destroyed by hydrocyanic acid, or by the repeated discharges of a large battery through the spinal marrow, very slight or no contraction is produced, when the current is applied upon the nerves; but when the muscles are submitted to the same current they give evident signs of contraction; thus proving that the muscular fibre possesses the property of contracting under the influence of the electric current, independently of the nerve. But in animals who have died in sulphuretted hydrogen, no contractions are obtained, unless powerful currents are employed, and then they soon cease, whether we act on the nerves, or on the muscles. A ligature on the nerve produces no other influence than that of insulating the effects of the current; that is, of producing the effects of its action on the nervous centres, separately from those which it has when acting upon the extremities of nerves. For when the current is transmitted through the part above the ligature,—towards the brain,—on opening and closing the circuit, signs of pain and contractions of the back are manifested; but if the current be transmitted below the ligature, contractions of the leg are obtained.

Prof. Matteucci experimented to ascertain the different effects of the direct and inverse current. The general conclusions at which he arrives, are:—

1st. "The contraction excited by the electric current, transmitted along a nerve in the direction of its ramification, and which we call *direct*, is always more energetic than that which this same current produces when passing along the nerve in the opposite direction.

2dly. "The direct current weakens and rapidly destroys the excitability of a nerve; whilst the passage of the inverse current augments it within certain limits,

3dly. "To produce these effects, the action on the nerve, of the direct as well as of the inverse current, ought to be continued for a certain time, which will be longer in proportion as the excitability of the nerve is weaker."—(p. 262.)

He next notices the influence produced by repose on a nerve which has been submitted to the action of the current.

> "If the nerve has been traversed by the direct current, repose restores a portion of its excitability; if it has been traversed by the inverse current, it loses by repose a part of that excitability which it had acquired under the influence of the current. When the nerve is very irritable, a very short repose suffices to restore the excitability lost by the action of the direct current; it is the same with the augmentation occasioned by the inverse current; almost as soon as it is interrupted, the nerve returns to its normal condition. In proportion as the excitability diminishes, the duration of repose necessary for giving or arousing the excitability acquired under the passage of the current, augments."—(pp. 263–4.)

The theory of the action of the current on the nerves, and of the phenomena which it produces in animals, deduced from the foregoing facts, established by innumerable experiments, which Prof. Matteucci gives, as well as the effects of the currents on the brain, spinal marrow, roots of the nerves, nerves of sensation, and ganglionic nerves, we shall be obliged to pass over. Our author found, along with Marianini and Masson, that a repeatedly interrupted current destroyed the excitability of the nerves much more quickly than a continuous one. He describes and figures Masson's apparatus, which is highly ingenious. On submitting a rabbit to the passage of a current by means of Masson's wheel, one of the conductors of a pile of ten elements being introduced into the mouth, and the other communicating with the muscles of the back, the animal died within a few seconds; so great was the loss of nervous power in a very brief space of time.

Prof. Matteucci concludes these lectures with stating some of the therapeutical applications made of electric current, founded upon the scientific principles which he has propounded.

In paralysis he says:—

> "Abstraction being made of all purely theoretical ideas, and independently of all hypothesis of the nervous force, we may admit that, in certain cases of paralysis, the nerves undergo an alteration analogous to that which they would suffer if they had been subjected to a continued passage of the electric current. We have seen that, in order to restore to a nerve the excitability lost by the passage of this current, it is necessary to subject it to the action of the inverse current. I must add, in favour of the efficacy of the therapeutic use of this current, that a limb, although paralyzed, constantly suffers some contractions when it is submitted, either to the passage of a current or to the action of electric discharges; and these contractions favour the restoration of the functions of the muscles. Experiment confirms these ideas: divide the two sciatic nerves of a living frog, allow one of the two limbs to remain quiet for ten, fifteen, or twenty days, and submit the other, two or three times a day, to the action of the current. The latter will continue to contract, whilst the other will fail to give any contractions when the current is applied to it. I am anxious to state to you some rules which I consider as important in the application of the current to the treatment of paralysis. You should always commence by employing a very weak current. This precaution seems to me now more important than I formerly believed it to be, having seen one paralytic patient seized with true tetanic convulsions under the action of a current furnished by a single element. Take care never to continue the current for too long a period, especially if it be energetic. Apply the interrupted current in preference to the continued one; but after *twenty* or *thirty* shocks, at the most, allow the patient to have a few moments' repose. Both practice and theory seem to prove, that the interrupted current is more useful than the continued one. A pile, with Masson's wheel, or, still better, the electro-magnetic machine, is the most convenient apparatus for this purpose. Electro-magnetic apparatus are now constructed, in which the interruptions of the current are made without the necessity

of an assistant. We may employ, as conductors, two ribands of sheet lead or copper. The extremities, which are placed in contact with the skin, should be covered with cloth moistened with salt and water. In some cases, it is useful to employ, as extremities of the conductors acupuncture needles. The number of authentic cases of paralysis cured by the electrical treatment, is already sufficiently great to encourage physicians and patients to persevere in its use. Perseverance, indeed, is indispensable in the application of the electric current, for without it, successful results are impossible."—(pp. 273, 274, 275.)

Prof. Matteucci was the first to apply the electric current in tetanus.

"The principles on which is founded its employment for the cure of this disease are the following. A current which circulates by jerks in an animal during a certain time, produces tetanic convulsions; the direct current, if continued sufficiently long, produces, on the contrary, paralysis. From this it was concluded, that the continued passage of the latter, in a tetanized limb, would destroy this condition, by producing a state more or less allied to paralysis. The truth of this conclusion is demonstrated by facts. In operating upon frogs which have been tetanized by narcotics or hydrocyanic acid, we observe a fit of tetanus cease under the influence of the prolonged passage of a direct current. The frogs die without presenting those convulsions, which are observed take place when these animals have not been submitted to the direct current."—(pp. 275, 276.)

During the passage of the current, the convulsions were moderated; the patient was able to open and shut his mouth; and the circulation and respiration appeared to be re-established. But the amendment did not continue. With regard to vesical calculi, he observes,

"It is sufficient. however, to remember, that the substances which compose urinary calculi are insoluble in water, to be convinced that such an application has no basis to rest on."—(p. 276.)

As for cataract, he remarks, that it is possible to create a cataract, but impossible to destroy it. Petrequin, of Lyons, has recently proposed the use of galvano-acupuncture for the cure of aneurisms, founded on the property which the electric current possesses, of coagulating the serum of the blood, and, consequently, of partially filling up the aneurismal sac.

Lectures XIV. and XV. are on *Nervous Force.* Professor Matteucci argues for, and conclusively (to us) shows, that whilst there is an analogy between the electric and nervous forces, that they are not identical. This might have been inferred from what has already been detailed.

"We have seen that this current exists in the integrant parts of the muscles, as well as between the molecules of two bodies which enter into combination; that it circulates there without any regularity, and one might say that, as Ampère imagined, it took place in magnetizable bodies, and that it is only by an experimental arrangement that we can discover the presence of this current. We have also shown, that the nerves have no direct influence over the production of this current, and that their office is limited, in experiments on the muscular current, to that of a slightly conducting body, communicating with certain parts of the muscle." * *

"*In the present state of science, and with the means of experimenting which we at present possess, no sign of the electric current is found in the nerves of living animals.*" (pp. 282, 283.)

It has been asserted, that steel needles introduced into the muscles perpendicularly to the direction of their fibres, become magnetic, especially at the moment that the muscles contract. Matteucci repeated all these experiments most carefully, but fruitlessly. He also tried the effect of introducing into an exposed nerve of living animals, the conductors of delicate galvanometers, by two points as far apart as possible, but without ever obtaining evident and constant traces of the electric current. Our author adds that, from what we know of the properties of electricity, and of the laws of its propagation, it is impossible to conceive the existence of a current circulating in the nerves. The laws of its propagation require conditions which are not found fulfilled in the nervous system; the propagation of its force is interrupted by causes which could not produce a similar effect upon the electric current.

The phenomenon of *contraction by induction*, or *induced contraction*, was discovered by Matteucci some years ago. If the nerve of a galvanoscopic frog be placed upon one or both thighs of a frog prepared in the usual manner, and the two poles of a pile be applied to the lumbar plexus, when the muscles of the thigh contract, convulsions simultaneously occur in the galvanoscopic claw, whose nerve rests upon the thighs in contraction. This phenomenon also occurs when the nerve of the galvanoscopic frog is placed upon the muscles of the thigh of a rabbit, which are made to contract by means of a current acting upon the crural nerve. Very fine layers of different substances, as gold leaf, thin and insulating lamina of mica, or glazed paper, being interposed, prevent the phenomenon. From this, Prof. Matteucci concludes:—1. That we cannot consider the induced contractions of the galvanoscopic frog to be due to the electric current; and 2. That we might, on the contrary, assume, that an electric discharge happens during the contraction of the muscles. A long series of experiments is enumerated, relative to the circumstances which intervene in producing, modifying, or destroying, the phenomenon of induced contraction, which further proves the non-identity of nervous force and electricity, though there is a certain degree of analogy between them.

> "We are, then, still ignorant of the cause of muscular contraction, and all that we know of this phenomenon are the following particulars: it is produced, even when acting at great distances from the muscle, upon the nerve, whose ramifications it receives; the integrity of the nervous filament from the point where the excitation takes place to the muscle itself is indispensable; this transmission is effected with such rapidity, that we are compelled to compare it to that of electricity, light, and radiant caloric, propagating itself through various media; what modifies, augments, or destroys the accomplishment of the chemical physico-phenomena of the nutrition of the muscle, has an analogous action upon its contractability, provoked by any influence acting upon the nerves; and, lastly, in the laws of the contraction of a muscle, we find an analogy with the physical laws of elasticity."—(p. 319.)

The fact of induced contraction will, then, be a phenomenon of induction of this unknown force, which circulates in the nerves, and produces muscular contraction. Prof. Matteucci proposes to call, henceforth, this new phenomenon of nervous force, *muscular induction*, instead of induced contraction.

In conclusion, we shall give the following summary of Matteucci's hypothetical views respecting the nervous force, from the *Comptes Rendus*, (15th March, 1847,) appended to these lectures, by the editor, Dr. Pereira.

> "1. The nervous fluid is produced by the chemical actions of nutrition.
>
> "2. This fluid, developed principally in the muscles, is diffused there, and being endowed with a repulsive force between its parts, like the electric fluid, retains the elements of the muscular fibre in a state of repulsion analogous to that presented by electrified bodies.
>
> "3. When this nervous fluid ceases to be free in the muscle, the elements of the muscular fibre mutually attract each other, as we see happens in cadaveric rigidity.
>
> "4. This nervous fluid enters continually into the nerves, and from them passes

to the brain, assuming in these bodies a new state, which is no longer that of the free fluid: in this manner it passes from the muscle to the nerve. According to the quantity of this fluid which ceases to be free in the muscle, the contraction is more or less strong.

"5. This state is that of the nervous current, or species of discharge which proceeds from the nervous extremities to the brain, and returns in the contrary direction, by the act of the will.

"6. When this discharge takes place, muscular contraction ought to take place, the fluid ceasing to be free in the muscles.

"7. This discharge of nervous fluid, acting as in the electric fish, explains the induced contraction; in both cases, and by the same disposition of parts, the nervous current produces a species of electric polarization of the elements, either of the muscular, or of the electric apparatus: the difference of effects will be due to a different number of elements, to their dimensions, &c.

"8. The electric current impedes the nervous discharge, if it be directed in the contrary direction; as in the direct current: the nervous fluid not being able to enter and accumulate in the nerve, this loses its excitability. The contrary takes place for the inverse current, which goes in the same direction as that of the nervous discharge: the nervous fluid is found accumulated in the nerve, and its excitability is augmented."—(pp. 326, 327).

Lectures XVI., *XVII.*, *XIX.*, and *XX.*, are excellent and well digested summaries on *Muscular Contraction*, *Animal Mechanics*, the *Circulation of the Blood*, the *Vocal Apparatus and Voice*, *Hearing*, and *Vision*. They contain no original observations of value, being chiefly compilations, most cleverly done, however. We must be content with referring our readers to the volume itself, which is now in course of re-publication in this country.

We cannot dismiss this admirable work, without expressing our conviction of its intrinsic worth; an opinion with which, we think, the reader of our imperfect analysis will agree. These lectures are a timely and precious contribution to physiology, and will hold there an honoured place, characterized by their accurate and philosophic character. In distinguishing the physical from the vital phenomena of living beings, and referring them to their proper laws, Professor Matteucci has laid the foundation of a new branch of science. An ingenious and skilful experimenter, his generalizations are cautious and trustworthy. He has gone to his task in a right spirit; and science is deeply indebted to him. Throughout the volume he has carefully kept in view the promise made in his first lecture, and fully redeemed it.

"In these lectures I propose to myself another, and not less important object; it is to introduce, in the exposition of physiological facts, and in the investigation of their laws, that precision of language, that exactitude of expression, that rigorous method, which are too often discarded in the study of physiology and of medicine, and which have been hitherto almost exclusively characteristic of the physical sciences."—(p. 14.)

M. C.

BIBLIOGRAPHICAL NOTICES.

ART. XIV.—*The History, Diagnosis, and Treatment of the Fevers of the United States.* By ELISHA BARTLETT, M. D., Professor of the Theory and Practice of Physic in the Medical Department of Transylvania University; Member of the American Academy of Arts and Sciences; Author of an Essay on the Philosophy of Medical Science, etc. etc. Philadelphia, Lea & Blanchard, 1847: 8vo. pp. 547.

THIS is a second edition of Dr. Bartlett's work on Fevers, published in 1842; greatly improved, and enlarged to nearly double the size of the first edition. In the latter was comprised the history of typhoid and typhus fever, with merely a short account of the diagnostic characters of periodical and of yellow fever. The complete history of the two latter fevers, constituting one-half of the volume, has been added to the edition before us; thus rendering the work what it professes to be, a systematic and methodical treatise on the Fevers of the United States.

In its present form, it does great credit to the author's industry and sound discrimination, as well as to his professional talents; while by the full and accurate history it presents of all that is known in relation to the pathology of the fevers embraced in it, with its cautious analysis of the morbid phenomena attendant upon, and those which are, so far as has been ascertained, peculiar to each, it cannot fail to be an acceptable addition to the library of every practitioner.

Dr. Bartlett is not much of a theorist; his principal business is with facts, and the estimate of their real value and relationship, and though he may, perhaps, occasionally give to one series of facts an undue importance, or force others into a false collocation, his analysis of them, in reference to the pathology of the diseases of which he treats, will, in general, be found to be marked by due caution and judgment, while his conclusions are neither bold assumptions from imaginary premises nor metaphysical subtleties tortured out from the materials before him.

His pathological histories are a simple digest of the facts collected by those who have had the most ample opportunities of studying each of the diseases and forms of disease embraced within the treatise—the observations of one practitioner being carefully collated with those of others In the few instances in which the author does attempt to theorize, it is with extreme diffidence and divested of everything approaching to dogmatism.

Dr. Bartlett's views of fever, in the nosological sense of the term, are perfectly correct, and if generally adopted would save much profitless discussion, and the weaving of pathological theories calculated to impede rather than to facilitate the acquisition of correct general views.

"There is," he remarks, "no such individual disease as that which has always been expressed, and which is still expressed by the term *fever*. How then can there be any *theory* of fever? There are many separate diseases, to which this generic name is properly enough applied, on account of certain general analogies, which exist between them. *But the disordered actions and processes, which constitute one of these diseases, may differ essentially;* and, *as far as we can ascertain, in most cases they do so differ, from those which constitute another of these diseases. The theory of one fever, then, must be wholly, or to a great extent, inapplicable to another.* The elements which enter into the composition of one problem are not to be found in the other, or they are present in different proportions. *The word fever, when used, as it commonly is, to designate a disease, has no intelligible signification.* It is wholly a creature of the imagination—the offspring of a false generalization and of a spurious philosophy. What, then, can its *theory* be, but the shadow of a shade?"

The first part of the present volume is devoted to a consideration of typhoid fever. Its history is given with great clearness, accuracy, and fullness; its symptoms are carefully analyzed; its anatomical lesions minutely delineated; its etiology, so far as determined by the result of observation, correctly pointed out, and its varieties and forms, duration, march, complications, mortality and prognosis, concisely indicated. The diagnosis of typhoid fever, as described by Dr. Bartlett, is based upon the doctrine of the disease being essentially and fundamentally distinct from typhus fever; even, however, considering it as merely a particular form or variety of the latter, its correct diagnosis is hardly less important in a practical point of view, and such a diagnosis is very ably laid down by the author in connection with his history of typhus fever.

Typhoid fever, Dr. Bartlett maintains to be a disease radically dissimilar from typhus in its nature, symptoms and pathology, and in this he follows the views of the most authoritative of those who have written upon the disease. If a well-marked case of typhoid fever be compared with one presenting the phenomena described as characteristic of typhus fever, a very decided dissimilarity between the two may be detected. But the two affections do not always occur with such evident distinctive characters. We have lately seen a great number of cases of fever in recently arrived Irish immigrants—the majority of the cases were of well-marked typhus fever, a few were of equally well-marked typhoid fever, while, in a third class of cases, the characteristics of these two fevers were so completely blended, that it was very difficult to determine which of the two predominated. Here then we have persons, who have been exposed to precisely the same morbific causes, attacked with fever of a similar type, bearing the characters in some of the typhoid fever, in others of the typhus, and in others again a union, as it were, of the characteristics of both. This fact would seem to prove, that the typhoid is a mere form or variety of the typhus fever. Of course, by those who maintain that these two fevers are radically distinct, the diagnosis would be based upon the presence or absence of the characteristic lesion of the elliptical plates of the ileum. But before the lesion referred to can be assumed as diagnostic of typhoid fever, and as establishing an essential difference between it and typhus fever, it must be shown that the presence of this lesion is invariably connected with that particular concourse of symptoms which is characteristic of the disease, and that the two are in all cases coincident. We place but little importance upon our own post-mortem examinations in the settlement of this question—they have been too few to enable us to base upon them any important conclusion:—others, however, who have had more ample opportunities in this respect, than ourselves, assert that no lesion of the elliptical plates was to be detected in cases presenting all the symptoms described as characteristic of typhoid fever, while, on the other hand, the lesion has been repeatedly met with in cases in which the symptoms alluded to were absent. Dr. Bartlett admits, that—

> "There is no *uniform proportion* between the extent of the local disease, and the severity of the symptoms. There are many fatal cases, in which the intestinal lesion is very limited in extent; there are others, where the whole character of the disease has been unusually mild, and in which, when life has been destroyed by some secondary and accidental complication, the alteration of the intestine has been found to be very extensive and profound."

In the present state of our knowledge on this subject it is, we conceive, much safer to consider the typhoid as one of the forms of typhus fever. Its distinct and specific character has not, as yet, been satisfactorily established.

We do not much admire the plan pursued by Dr. Bartlett in his exposition of the therapeutical management of typhoid fever. To detail the various plans of treatment pursued by different practitioners, particularly when these plans are, confessedly, to a certain extent opposed to each other, is not calculated to lead the young and inexperienced members of the profession to correct views as to the most successful mode of managing the disease. We do not believe that the subject is surrounded with so much difficulty or that the facts upon record are too few, to enable us to form a correct estimate of the best plan of treatment in the disease under consideration. The general principles of therapeutics, and the leading morbid phenomena in each case of the disease, aided by the observations of those who have had ample opportunities of treating this particular form of fever, will not lead us far astray in determining its proper remedial management.

The second part of the volume is devoted to a consideration of the history, diagnosis and treatment of typhus fever. In relation to the first of these points the author has presented a very faithful analysis of all the well accredited facts upon record. The results of this analysis are by no means so satisfactory, it is true, as are those derived from the analysis of the facts in reference to the natural history of typhoid fever. This results from the few entire and elaborate histories of the disease that have been published—the little attention that has been paid to determine its true symptomatology and anatomical lesions, and to distinguish between its true and proper characteristics, and the phenomena dependent upon the various complications with which it is so frequently attended.

In treating of the causes of typhus fever, Dr. Bartlett examines the question of its propagation by contagion—and arranges himself among those who maintain the affirmative; but denies that the disease is exclusively and invariably the product of contagion. He admits, however, that, as a general rule, the contagious principle must be concentrated and abundant, so to speak, in order to excite the disease: that a few cases, in a large, cleanly, and well ventilated ward, do not often communicate the disease to the other occupants, nor to the medical attendants and nurses.

The chapter on diagnosis is a good one—and although we cannot agree with the author as to the radical dissimilarity between typhus and typhoid fever, we admit the accuracy of his diagnosis between the more marked cases of these two forms of disease. The historical portion of this chapter is particularly interesting.

A very good summary is given in the chapter on treatment, of the therapeutics of typhus fever.

The present and preceding parts of the volume, conclude with a bibliographical notice of the leading publications in relation to the diseases treated of.

Part the third is devoted to a consideration of the history, diagnosis, and treatment of periodical fever—embracing intermittent, remittent, and congestive fever. All of these, Dr. Bartlett considers to be merely varieties and modifications of a single individual disease. This is probably a correct view; and yet, between the phenomena characteristic of the different forms of periodical fever, there is a much more striking contrast, than between those of typhoid and typhus fever. And even some evidence has been adduced, to prove that the anatomical lesion, supposed to be diagnostic of typhoid fever, is occasionally present in cases of remittent fever.

The analysis of the symptoms of remittent fever, presented by Dr. Bartlett, is sufficiently full and accurate.

The following are his general remarks upon the relation of the anatomical lesions of periodical fever to the symptoms; the most important point to be settled in the pathological investigation of every disease:

"It is sufficiently demonstrated by the foregoing details, that periodical fever does not often destroy life, without leaving behind it very decided, and somewhat extensive anatomical lesions. As I have done, in regard to the fevers already treated of, I propose here to say a few words about the connection between the symptoms of the disease, on the one hand, and these lesions, on the other. This connection, so far at least as the most constant and important pathological alterations are concerned, would seem to be pretty uniform and direct We can hardly hesitate, I think, for instance, in referring the nausea, vomiting, and epigastric distress, so nearly always present, to the disorders of the mucous membrane of the stomach, resulting in the changes that are found after death. So the moderate fulness across the upper part of the abdomen, with the tension, the feeling of weight and oppression, in each hypochondrium, and especially in the left, are evidently connected with, and dependent upon, the congestion of the liver and spleen, resulting in the alterations which these organs constantly exhibit. In the same way, it is impossible to doubt that the coma and delirium, are intimately and directly connected with the striking lesions usually found in the brain and its membranes; and if the relationship here sometimes fails—if it is not absolutely invariable—this is only what happens occasionally, even with the best established and most constant of these relations, in other diseases. M. Maillot thinks that the *algid* symptoms—the failing circulation, and the icy coldness—are especially and immediately connected with the lesions found in the spinal marrow and its membranes.

"I do not see any reason to suppose that the lesions of periodical fever follow any fixed or uniform order of succession in their development. The congestions and irritations of the several organs and tissues, which bear the chief burden of the disease, are, in many cases, evidently simultaneous in their origin—occurring together; in others, the weight of the disease, to use the favourite phraseology of the older writers, falls principally upon one organ—the brain, for instance; in still others, upon some other organ—the stomach, the liver, or the spleen;—and all this, without anything that is constant or regular."

The etiology of periodical fever, is considered at some length; the best ascertained facts in relation to this subject, are briefly presented, and the necessary deductions from them accurately stated. In the following remarks the author evinces a praiseworthy cautiousness:

"In regard to the alleged agency of animal and vegetable decomposition in the production of the poison of periodical fever, I have but little to say, and this for the simple but sufficient reason, that we have no positive knowledge upon the subject. Unquestionably, there is a very active decomposition, both of vegetable and of animal substances, usually going on in malarious localities; it is possible enough that this decomposition may produce the poison; but there is no positive evidence yet that it does so; and there are some reasons for doubting it altogether. One of these reasons is to be found in the common and notorious fact, that this same decomposition is constantly going on without giving rise to periodical fever. The hypothesis of the animalcular origin of this, and of some other endemic and epidemic diseases, is an old one, and has been recently revived and advocated with great ingenuity and ability. It is only a hypothesis, but it may be safely said of it, I think, that it may be made to correspond to the ascertained phenomena in connection with the etiology of these diseases, better than most other hypotheses; and that it is less embarrassed by objections which cannot be met, and by difficulties which cannot be overcome."

Although, among the varieties of periodical fever, the author includes congestive fever, and gives a very good description of its several forms, he spends but a few words in relation to its pathology. Considering the very common use, and we might add, very frequent abuse, of the term congestive fever, this is to be regretted. The author has, apparently, made it a point to avoid as much as possible, entering upon any theory of the nature of the diseases of which he treats, beyond that which appears to him immediately deducible from the facts detailed; still we regret that he has not entered into a more minute analysis of the pathological phenomena of those fevers, to which the term congestive is most usually applied; such an analysis would, we believe, be calculated to lead to important practical results.

In its connection with the grave forms of periodical and other fevers, the congestion would appear to Dr. Bartlett, to be connected with some unknown but profound modification of the great function of innervation. In this opinion he is no doubt correct—but from the supposition, that when innervation is suddenly and violently perverted, there occurs, at the same moment, "a like sudden and violent rush of blood towards some one or more of the organs; or a draining off of the serum, as happens in epidemic cholera,"—we must dissent:—The phenomena of what are termed congestive diseases—the anatomical lesions connected with them, and every correct view of the physiology of the circulation, are opposed to the idea of this *sudden and violent rush of blood.*

A very excellent summary of the treatment of periodical fever is given by the author as applicable to the forms of bilious remittent fever, congestive fever, and intermittent fever. The author denounces the system of excessive purgation, in the first of these forms, which from the influence of a preposterous pathological theory, has been pretty extensively prevalent throughout many portions of our Southern and Western States.

A good, but not very extensive bibliography of the various publications upon the subject of periodical fever, closes this part of the work. Many noted works on this subject are not noticed by the author; to have gone over the entire list of the treatises that have been written on periodical fevers, even in the hasty manner with which those enumerated are considered, would have required a volume as large as the one before us.

The fourth and last part of the volume treats of the history, diagnosis, and treatment of yellow fever.

Notwithstanding the indirect apology which Dr. Bartlett offers for introducing into the volume an account of the yellow fever, from his entire want of personal knowledge in regard to the disease, he has, nevertheless, succeeded in presenting a very fair and very valuable exposition of all the leading facts in relation to it. His analysis of the symptoms of this peculiar and strictly specific fever, is marked by great accuracy, while his account of its anatomical lesions corresponds with the observations of those physicians who have most accurately investigated this portion of its pathology.

We regret, however, that the author has not extended his inquiries still further; and by a careful comparison of the pathological histories of the various epidemics of yellow fever, that have occurred in different portions of the world and at different periods, he has not, so far as these histories afford sufficient data, endeavoured to solve the question, whether under the general name of yellow fever, very dissimilar diseases are not included. We have reason to believe, that such is actually the case. In no other manner can we account for the very great discrepancy in regard to almost everything that relates to its natural history, its morbid anatomy, and etiology, which the observations of different observers present, in regard to whose honesty, accuracy of observation, and opportunities for the study of the disease, there can be no question.

On the subject of the contagion of yellow fever, Dr. Bartlett contents himself with noticing the various hypotheses that have been emitted in regard to this important question, and the facts adduced by the supporters of each in defence of his own views, without attempting to come to any decision as to their comparative truth, or the relative weight of the evidence upon which each rests. His account of its etiology is, in other respects, correct and satisfactory.

Dr. Bartlett's *definition* of *yellow fever* presents so concise and accurate an outline of the leading features of the disease, that we must transcribe it.

"Yellow fever is an acute affection; occurring at all ages, but much more frequently during the middle and active period of life, than either earlier or later; attacking, in a large majority of instances, persons who are not permanent residents in the places where it prevails,—sometimes extending, however, especially in localities where it is of rare occurrence, to such residents; rarely occurring twice in the same person; much more common in the white than the negro race; generally milder in its character amongst children and women than amongst men; confined to certain geographical localities, and especially, to commercial seaports in hot climates; prevailing most extensively during the latter part of the hot season; often epidemic, but sometimes sporadic in its appearance; not capable of transmission from one person to another in a pure atmosphere; depending for its essential cause upon a poison of terrestrial origin, the nature and composition of which are entirely unknown,—which poison may be shut up in small and close apartments, in clothes, bedding, and so on, and transported from one place to another, and which is destroyed by a freezing temperature:—sudden in its access; commencing with an initiatory chill, ordinarily of moderate severity, and of short duration: the latter accompanied with acute and violent pains in the head, back, and limbs, or immediately followed by them; then by a red suffusion of the eyes, moderate heat of the skin, and moderate acceleration of the pulse, loss of appetite, and thirst; a moist, white, villous tongue, with rosy tip and edges;—these febrile phenomena diminishing in activity, and mostly disappearing, in from twenty to thirty-six hours;—the first stage of the disease, thus characterized, passing, in mild cases, into convalescence, but in grave cases, being followed, after an interval of apparent but deceptive amelioration, by nausea and vomiting,—the matter ejected from the stomach, in cases that are to terminate fatally, resembling coffee grounds; black or dark-coloured stools; epigastric distress, general restlessness, and jactitation; sighing respiration; hiccough; a yellow colour of the skin; coldness of the extremities, gradually extending to the trunk; and finally, by death;

the mind usually remaining free, but apathetic and indifferent, up to the close of life; which symptoms differ very widely in their degree of severity, and especially, in their number and combination, in different cases, thus giving rise to different varieties and grades of the disease; which symptoms, furthermore, may either subside and disappear, in the course of a few days from the time of their commencement, or may terminate with death, between the third and seventh day of the disease; the bodies of patients exhibiting, on examination after death, in most cases, a yellow or buff colour of the liver, with dryness of its tissue; black spots or masses, more or less numerous in the lungs; softness and flabbiness of the substance of the heart, and in nearly all cases, unusual thinness and fluidity of the blood; and redness, mamellonation, changes in the thickness, and softening—one or more—of the mucous membrane of the stomach; this organ and the intestines usually containing a considerable quantity of a very dark or black fluid or semifluid matter; which disease differs essentially from all others, in its causes, its symptoms, and its lesions; and is only to a moderate extent, at least in its graver forms, under the control of art."

This is the neatest, most accurate, and comprehensive definition of yellow fever we have met with. It does much credit to Dr. Bartlett, who, unacquainted with the disease from personal experience, has evidently studied with care its history, as recorded by others, and analyzed with great judgment its peculiar features.

In regard to the nature of yellow fever, we know as little, if not less, than we do of any of the other fevers. Dr. Bartlett believes that it is not a simple gastritis.

"Notwithstanding," he remarks, "the general presence, and the grave character of the lesions of the gastric mucous surface, in fatal cases; and the corresponding constancy and gravity of the gastric symptoms, it seems to me, that a rational interpretation of all the phenomena of the disease leads inevitably to the conclusion above stated. The order of succession, in the phenomena of yellow fever, is not such as occurs in simple acute gastritis. The gastric symptoms do not accompany the general febrile excitement; the latter precedes the former. If the high fever of the first period is dependent upon gastritis, there should be, at the same time, some local symptoms of this latter. The first stage of the disease is not accompanied by any signs of gastric inflammation; and in mild cases, and, not unfrequently, also, even in pretty severe cases, which terminate in recovery, there are no such signs during any period of the disease. This could not be so generally the case, if the disease consists primarily and essentially in an inflammation of the mucous membrane of the stomach. The gastritis, there is every reason to believe, is a secondary lesion, like that of Peyer's glands in typhoid fever, one of the results, immediate or remote, of the unknown poison of the disease."

Dr. Bartlett considers it very probable that a most important element in the pathology of yellow fever, is to be found in the alteration of the blood.

"The etiological poison of the disease, received into the system, works a morbid change of some sort in this fluid, the immediate effects of which are manifested in the first stage of the disease; in mild and moderate cases, these effects are carried no further; but in grave and fatal cases, there are superadded to the contamination of the blood, certain consecutive local lesions, especially of the liver, and the mucous membrane of the stomach."

In regard to the treatment of yellow fever, our author, after enumerating the results of the experience of some of the leading physicians, whose opportunities for judging of the results of the practice pursued by them, give to their opinions considerable authority, provided we can in all cases depend upon the accuracy of their diagnosis, concludes by presenting the following general conclusions.

"The simple and milder form of yellow fever, occurring sometimes in unacclimated adults, but more frequently amongst the acclimated, or partially acclimated, and in children, usually terminates favourably, independent of any of the ordinary modes of treatment. Perhaps this termination is promoted by a mild but efficient cathartic.

"The open inflammatory form of the disease is mitigated in severity, and its danger diminished, by prompt and pretty free blood-letting—general and local; and by an efficient cathartic.

"The congestive form of the disease. and the other forms, if they pass into the stage of collapse, usually terminate fatally, and are but little under the control of art. In those cases, the method of treatment usually followed by Spanish practitioners, and adopted by the physicians of Mobile, seems to promise more success than any other."

The practice to which reference is here made, consists in a dose of calomel, given in the early stage, followed by castor oil, olive oil, or salts and senna, to promote its free action upon the bowels; when the rigors continue long, a warm mustard bath. Perspiration is promoted by warm drinks—and cups are applied to the cervical or epigastric region, as they seem indicated. During the period of calm, the lighter diffusible stimulants are usually given with blue pill. The transition of the disease into the third stage, or that of collapse, is carefully watched, and met with an active stimulant treatment. Brandy-toddy or julep is usually preferred. This is to be continued—its effects being carefully watched—until the depressing tendency of the disease is fully arrested, when small quantities of chicken or oyster broth are cautiously given.

A tolerably full bibliography of the leading works on yellow fever close this part. In this, we are gratified to find Dr. Bartlett doing justice to the publications on this subject of Dr. William Currie, of Philadelphia—a medical writer whose talents have been much underrated by the profession in this country, while the valuable contributions made by him, to our knowledge of many of the more important of our endemic diseases, have been strangely overlooked. Dr. Currie, unfortunately out-lived his mental powers—and the state of fatuity in which he was known to most of the American physicians now living, may account in some measure for the low estimate in which he is held by many as a medical observer.

Speaking of his memoirs of the yellow fever, and of his observations on the causes and cure of remitting or bilious fever, &c., Dr. Bartlett remarks:—

"Both these volumes are marked throughout by careful observation, by a correct philosophy, and by sound sense. Dr. Currie was a cotemporary of Dr. Rush, and a practitioner in the same city. His general descriptions of disease are quite as good, to say the least, as those of his distinguished fellow citizen, and his medical philosophy infinitely sounder and more rational. He recognized clearly the radical difference between bilious remittent and yellow fever."

In the correctness of these remarks, we fully coincide.

Throughout the volume before us, there is a spirit of candour and impartiality displayed by the author—which, with the general truthfulness and accuracy of his delineation of the several diseases embraced in it, presses it strongly upon the favourable notice of the medical profession. We recommend it to our readers as one of the best—certainly the most complete, systematic, and methodical treatises on the Fevers of the United States, that has yet appeared. D. F. C.

Art. XV.—*The Human Brain; its Structure, Physiology and Diseases, with a Description of the Typical Forms of Brain in the Animal Kingdom.* By Samuel Solly, F. R. S., Senior Assistant Surgeon to St. Thomas's Hospital, etc. etc. With numerous Wood Engravings. Second Edition. London, 1847: 8vo., pp. 688.

The first edition of this work was published in 1836, and was noticed in our number for May, 1838. Its object was the diffusion of a sounder and more correct method of studying the anatomy and physiology of the most important system in the body. Though eleven years have elapsed since the appearance of the first edition, the same barren and slovenly method of describing the structure of the nervous centres still, we suspect, too generally obtains. The old, unphilosophical and totally inadequate plan of slicing the brain, is still too frequently pursued; and the effort to trace the relations which exist between the structure of the different component parts, and their functional manifestations, too constantly neglected. It has been justly observed by Foville, that "sections of the brain teach little more than sections of the body would;" and Dr. Craigie has proclaimed the absurdity of the present system in the following forcible language: "To the mind," he says, "which is unfettered by prejudices in favour of ancient opinions, it appears singular that the enlightened physiologists of the eighteenth century should talk of the medullary and cortical matter of an organ in which nothing like marrow or bark can be seen; and it is more extraordinary still, that the accurate distinctions which anatomy has introduced since the commencement of the nineteenth century have not demonstrated the evil of retaining terms which are improper, as mere nominal distinctions; but which are doubly erroneous as the relics of an unfounded and exploded theory. Is the error of likening the brain to marrow, obviated by shrouding it under the learned denomination of medulla and medullary? Or is the absurdity of supposing the gray matter of the convoluted surface, a bark, or envelope, to the white pith, diminished in the slightest degree by calling that gray matter cortical? The common sense of the present day will not hesitate to answer these questions in the negative."

The plan of study of the anatomy of the cerebro-spinal axis, advocated and pursued by Mr. Solly, is founded on the rational and philosophical basis of investigating its structure, in man, by the light of comparative anatomy. By beginning with the structure and functions of a nervous system in the lowest scale of the animal series, and gradually ascending to the higher and more complex, noting each addition, and its corresponding increase of function, the anatomy of the human brain is at once simplified and invested with general interest. "By pursuing this course," says Mr. Solly, "we shall be rewarded by finding that the encephalon, this apparently most complicated organ in the human being, is but a gradual development from an extremely simple fundamental type on one uniform and harmonious plan, and that the seeming complexity of the cerebro-spinal axis in man, really arises from the great concentration, as opposed to the extreme diffusion of its component parts in the lower order of animals; for in no particular are the higher orders more strikingly distinguished from the lower than in the concentration of function within circumscribed spaces." (Preface, p. x.)

In Part I. the physical, chemical, and microscopical character of the component matter of the brain—neurine, the substance in which the peculiar powers of the brain and nerves reside—is investigated. The two kinds of neurine, the vesicular and tubular, are described. Late researches have amply sustained the views advanced by our author, in his first edition, of their relative function,—that the cineritious neurine is the source of power, and the medullary neurine merely the conductor of it. This view of the subject is now almost universally admitted. The whole of this chapter on the structural anatomy is an admirable epitome of our knowledge on the subject.

Part II. is devoted to the comparative anatomy of the nervous system. There Mr. Solly has shown much discrimination and judgment, by not entering too much in detail into the immense varieties of form which the nervous system of the whole animal kingdom presents; but has used comparative anatomy only as an ally to assist and simplify the study of the human brain. The incorrect or limited application of the term ganglion is objected to. and a more comprehensive meaning, in accordance with the views at present held by physiologists, advocated. It has been too much the habit to regard a peculiar rounded form as necessary to the constitution of a true ganglion. A wrong impression is thus conveyed. "But if the term ganglion be correctly applied to the nodules of neurine, or centres of power in the lowest animals, it is equally correct to apply it to those of the highest; and it therefore follows that the human brain is but a series of large ganglia."—(p. 32.) Mr. Solly repeats the opinion expressed in the former edition, that in extending the term ganglion, so as to apply it to any collection of cineritious neurine into a circumscribed mass, whatever form or arrangement it may assume, we would very considerably simplify the anatomy of the human brain. He proposes to name the cineritious neurine which forms the convoluted surface of the hemispheres of the brain, the hemispherical ganglia, the convoluted appearance being merely accidental, and for the purpose of convenient packing. "There would be," he justly observes, "just as much reason to deprive the semi-lunar ganglion of its generic title, and give it a name merely in accordance with its appearance, as there is in separating the hemispherical ganglia of the human brain from their analogous ganglia in the lower animals, and designating them by a term which gives a mystery to their character they do not deserve. * * * It is a distinct ganglion, and as such ought to have a name." And he adds, in rather homely phrase, "There would be as much sense in calling the *occipito frontalis muscle* the *cortical substance of the cranium*, as there is in calling the *hemispherical ganglion* the *cortical substance of the brain.*"—(p. 33.) If a better name should be proposed by any other anatomist, Mr. S. expresses his willingness to adopt it. We regret that we cannot follow Mr. Solly throughout this chapter, which is replete with interest and with information essential to a right comprehension of the human nervous centres. It is itself an admirable abstract of the comparative anatomy of the nervous system, which the student must master, to study with pleasure and interest that system in man,—and we can offer no digest of it with any advantage to the reader, but can conscientiously recommend it to his attentive perusal. We should, however, direct particular attention to his excellent, and, in some important respects, original description of the medulla oblongata in the ascending series. It must be gratifying to Mr. Solly to find that his view of the homology and physiology of the cerebral ganglia of the fish, first enunciated in the former edition of 1836, is now very generally recognized.

Part III. treats of the protective apparatus of the human brain; and

Part IV., on the weight of the human brain, is enriched with the excellent tables of Dr. Bird.

In Part V. the configuration of the encephalon is considered, and is illustrated by several admirable drawings from Foville, and the author.

Part VI. is entitled, Dissection of the Human Brain and Spinal Cord, and is a most lucid and unexceptionable description of the anatomy of the great nervous centres in man. It is an accurate and simple analysis of the present state of our knowledge of the component parts of the encephalon, and we know of none other which will enable the student more readily to acquire a complete knowledge of its true character.

As a specimen of his manner of treating this part of his subject, and to show that our appreciation of it is not too great, we shall append his concluding remarks to this chapter. "The above descriptions," says Mr. Solly, "demonstrate that the encephalon or brain in the human subject is not a large solid mass of matter, in the interior of which are cavities scooped, as it were, out of its substance to be appropriately denominated ventricles, but that it really consists of ganglia or collections of cineritious neurine placed on each side of the mesial line. Some of them being the appropriate ganglia of the nerves of sensation; as, for instance, the olfactory ganglia, the optic ganglia, or tubercula quadrigemina, the auditory ganglia, or posterior pyramidal bodies, the pneumogastric ganglia, or restiform ganglia, the olivary bodies or lingual ganglia; the others being the motory or sensory ganglia, as the corpora striata and thalami nervorum opticorum. The hemispherical ganglia again, that they might present the greatest possible extent of surface, are folded up into innumerable plaits, and thus cover or surround every other ganglion within the cranium, so that on first removing the skull-cap, nothing can be seen but the convoluted surface of these extensive ganglia. And here let me insist upon this important principle in the study of the brain, which is also one of the first ideas that the student should acquire regarding its composition, namely, that it consists of corresponding or symmetrical parts on each side of the mesial plane, and instead of regarding the fissures of separation between its different portions as forming ventricles or cavities, he must direct his attention to the ganglia which bound the fissure, and the structures called commissures, which, connecting them together, cross the fissure and necessarily alter its character in different points, making, it is true, but not at any place changing the true fissure into a true bag or circumscribed cavity. The third, the iter a tertio ad quartum ventriculum, the fourth and fifth ventricles, we have already seen, are in truth no more than the successive dilatations from below upwards of the posterior fissure of the cord; difficult enough to be understood when these are viewed in different situations and unconnected one with the other, as in the ordinary mode of dissecting the brain, but which seem necessary and obvious where its parts are traced in connection with one another."—(p. 282.) He adds, that it is too much the custom to burden the memory of the student with fanciful and unmeaning names, and that instead of "puzzling himself with the absurd titles of hippocampus major and minor, pes hippocampi, tænia hippocampi, cornu ammonis, &c., he should be required simply to observe how the spinal columns appear to terminate superiorly in two large tubercles, the *corpora striata* and *thalami*, from the sides and under parts of which the hemispheres spring out, being afterwards reflected so as completely to envelope this bulbous extremity of the spinal cord. In the same way the third ventricle should be described as a fissure separating the two halves of the brain, his particular attention being directed to the commissures which pass across it to connect the different cerebral ganglia with one another. The description of the relative position of these ganglia, the commissures connecting them, and their relation to the ganglia and columns of the spinal cord, comprehend all the information which is either interesting or useful to the student."—(p. 283.)

The cerebral nerves, and the vessels employed in the cerebral circulation, occupy Parts VII. and VIII., when we reach

Part IX., in which the development of the brain is most philosophically handled. This chapter is the complement of the several preceding ones, and admirably illustrative of them, and the views contained in them. It is conceived and executed in the same happy manner. There are no useless details; all is subordinate to the main object—the anatomy and physiology of the human brain. The law of progressive development is nowhere more admirably exhibited than in the nervous centres, and nowhere do we find more decided proofs of the general harmony which prevails throughout the animal kingdom.

Part X., on the physiology of the cerebro-spinal system, is meagre and unsatisfactory as compared with the preceding portions of the work. As an apology, the author states, that "in the anatomical sections of the work, he has purposely introduced much physiology, in order to give more interest to the anatomy than is usually attached to mere details of structure, without reference to function, so that in this section it will only be necessary to give a summary of what has been more or less touched on previously."—(p. 326.) Still, we think, more was required, and should have been done. We fully agree with Mr. Solly that it is "a subject which every candid physiologist approaches with great diffidence, for though much has been done within the last ten years, still much remains in doubtful obscurity." We concur with our author from actual experience, in thinking, "that notwithstanding the various sources of error to which experiments on living animals are exposed, some very important facts have been elicited, which, taken in conjunction with those derived from comparative anatomy, pathology, and observation during life, have afforded collateral evidence of the separate offices of different portions of the brain and nervous system. As regards our knowledge of the functions of the nerves and the spinal cord, experiments have been invaluable; and in reference to the encephalon, when taken in connection with the facts of comparative anatomy, they have shed much light on the subject, particularly those of Flourens and Bouillaud. In so far as this mode of investigation is admissible, the results obtained by these authors are perhaps the best authenticated and the most satisfactory of any."—(p. 327.)

Mr. Solly is quite disposed to accept the ingenious theory of Dr. Carpenter with regard to the offices of the anterior and posterior cerebral ganglia, the optic thalami and corpora striata, first enunciated by that physiologist in his review of Mr. Noble's work on the Brain, in the *British and Foreign Medical Review* for October, 1846, and subsequently in a communication to the British Association, in 1847. These ganglia Dr. Carpenter regards as forming part of the series of sensorial centres, of which there are other members in the olfactory, optic, and auditory ganglia; and that they are independent centres of action, and not mere appendages to the hemispheric ganglia. This view is sustained, he thinks, by the large quantity of vesicular neurine they contain, and from the absence of any correspondence in size between them and the hemispherical ganglia, particularly with respect to the corpora striata, which, in fishes, make up the principal bulk of the second pair of masses; in reptiles, birds, and the lower mammalia, they still form a very large portion of the cerebrum; and in man and the higher mammalia, are only subordinate, because of the large relative development of the hemispheric ganglia. On the other hand. there is scarcely any rudiment of the thalami optici to be discovered in fishes: their proportional size increases in reptiles, birds, and the lower mammalia; but it is only in man that their dimensions approach those of the corpora striata. The peculiar connection of the thalami optici with the posterior columns of the spinal cord, and their great development in man, suggest the idea, according to Dr. C., that they are the ganglia of *tactual* sensation; whilst the connection of the corpora striata with the anterior columns indicates the relationship with the motor function. The close relation between the thalami optici and the corpora striata, harmonizes with the fact that the greater number of muscular movements are directed by common sensation; "whilst the special connection established by the inter-cerebral commissure between the corpora striata, and the optic ganglia (tubercula quadrigemina) explains the peculiar influence of the sense of light in directing certain classes of muscular actions. The communication which is formed by the medullary substance of the cerebrum between these ganglia and the hemispheric ganglia seems to be the medium by which *sensations* are transmitted to the latter, to become the stimulus of intellectual operations, and by which the influence of *volition* is transmitted downwards to excite muscular motions through the corpora striata.

"The whole chain of sensory ganglia is regarded by Dr. C. as not only the instrument by which sensations are received, but also as the centre of those *automatic* muscular movements, which differ from those of a simply reflex character, in being dependent upon sensation. To this head, he refers the purely *instinctive* actions of the lower animals, as well as a variety of actions performed by the human being, both in health and disease; such as the consensual movements of the eyes, the regulation of the laryngeal muscles in the production of vocal sounds, the convulsive movements in hydrophobia, brought on by the sight or sound of water, &c. &c. And he considers the actions which become automatic by *habit*, as executed through the same channel; each movement being directly prompted by the sensation with which it has become associated."—(pp. 334, 335.)

Of the hemispherical ganglia, Mr. Solly rightly says: "If there is one point in the physiology of the brain more unequivocally demonstrated than another, it is that these ganglia are the instruments of the mind—the portion of the brain in which sensations are converted into perceptions, and give rise to ideas. Comparative anatomy, developmental anatomy, experiments on living animals, *observations on its size and form, as indicated by the size and form of the skull*, and last, but not least, pathology; all afford a mass of overwhelming evidence that this portion of the brain, and this only, is the cerebral organ of intellectual power."—(p. 335.) The italics in this quotation are our own, for Mr. Solly here appears as the advocate of phrenology—not violent or intemperate, but still decided—and assigns four reasons for believing that there must be a great deal of truth in it, in all of which, however, we discover nothing new, or particularly convincing.

The concluding and XIth Part, treats of the Diseases of the Brain, and has been added to the present edition. The author tells us, in his preface, that it was added because he believed it would render the work more useful. That it will increase its sale, under the false plea of making it more practical, we can readily conceive. But his limits were necessarily too confined to enable him to do the same justice to this portion of his subject, as had been done to the previous parts. Still, there is much valuable matter in it, and we only regret that it was not expanded into another volume. Some of the sections are capital summaries of all that is useful of the several cerebral affections of which they treat. We might especially indicate that on inflammation of the hemispherical ganglia; and we regret that we are unable to follow Mr. Solly more particularly in his pathological chapters.

The volume is a beautiful one, and is illustrated with one hundred and eighteen well executed wood engravings, for the general accuracy of which, the author vouches, many of them being from original drawings. We have noticed, however, very singular inaccuracies in the orthography of familiar proper names—as, *Diemebrok*, for Diemerbroeck; *Erastatus*, for Erasistratus; *Whyte*, for Whytt; *Durand-Fardell*, for Durand-Fardel; *Beclard*, for Béclard; *Pruss*, for Prus; *Pritchard*, for Prichard; *Lallemande*, for Lallemand; and several others.

In conclusion, we must state the exalted opinion we entertain of this volume. The author has carefully arranged all that is known upon the anatomy and physiology of the human brain; he has cleared the path of inquiry of all unnecessary incumbrances; he has simplified, and improved upon, many of the ordinary methods of description; and has raised for himself an enduring monument.

M. C.

Art. XVI.—*Practical Physiology for the Use of Schools and Families.* By Edward Jarvis, M. D. Philadelphia, 1847: Thomas, Cowperthwait & Co.: pp. 368, 12mo.

"Every human being is appointed to take the charge of his own body. He must supply its wants, direct its powers, regulate its actions, and thus sustain his life. This responsibility for the care of health, takes precedence of all others, and requires the earliest attention to prepare to meet it. Before any one can have any use for other knowledge, he must know how to live. He should, therefore, learn the nature and the wants of his frame, and of its various organs, even earlier than he studies the features of the earth, the science of numbers, or the structure of language; for, before he can put these to any practical use, he must eat and breathe, and move, and think. Physiology should, then, be included among the subjects of all school education, and thus preparation be first made for the fulfilment of the first responsibility of life."

Such is the distinct and forcible appeal made to the common sense of every reader by Dr. Jarvis, in the preface to the work, whose title heads this article. The truths it contains, all must admit, and the lessons which it inculcates, all must desire to learn. But how is this to be done? What means are at the disposal of teachers and of others, to enable them to fulfil these expectations from them? Several treatises, professing to teach physiology, in familiar and popular language, have been published; but it must be confessed that they generally serve only to show, with all their merits, how difficult it is to make scientific subjects intelligible without the use of technical language, and without dwelling too much on non-essentials, while matters of real importance are merely glanced at. If science is to be made popular, and we must confess we doubt the practicability of it, it must be done in such a manner, as not to fatigue the mind by too much detail, and so that "he who runs may read." Now, Combe's "Constitution of Man" fulfils this condition, as regards physiology, better than perhaps any hitherto published work, containing all that may be called useful knowledge to every man. Its style is good, the manner in which it treats the subjects on which it descants, is exceedingly attractive; and, with some exceptions, the information it gives is founded upon the received facts of science, while its popularity is sufficiently attested by the extraordinary sale it has met with everywhere. A better text-book, and more scientific work, is the Physiology for schools, by Dr. Reynell Coates, which stands deservedly well, for it is clear, full of agreeable and apt illustration, and leaves little untouched which is worthy of notice. We must admit, however, our preference for the work of Dr. Jarvis, which we have before us, and which we commend warmly to the attention of instructors for the same reasons that, in the number of this Journal for April, 1846, induced us to speak so highly of his lecture on the Necessity of the Study of Physiology, viz., that it is eminently characterized by strong common sense, original and apt illustration, a thorough acquaintance with the subjects of which he treats, and an originality and freshness, which show that the whole has been thoroughly digested in the author's mind before he sat down to write. It is professedly written for the instruction of youth, and dwells only upon those details of organs and functions, which are necessary to teach mankind the means of preserving health in the daily avocations and exposures of life. It is, therefore, as much a treatise on hygiene as it is on physiology; which, by the way, must be the case with every work on practical physiology. Such being its character, and such its object, it only remains for us, in a medical journal, to state how far it is calculated to give accurate knowledge, and to convey sound principles. From the examination we have made, we would say that the best authorities have been consulted, the most recent developments which science has made have been employed in elucidating the various functions of the system, and discussions on doubtful points are avoided, the author boldly, yet with due caution, adopting those views which best accord with common sense; a characteristic of all his writings. We will now merely indicate the manner or order in which he presents the subjects to the reader. He begins with the nutrition of the body, the want most obvious to every person, treating of digestion and food, and then following the food converted into nutritious chyle into the circulation, he places before us the vessels and organs connected with the circulation of the blood, and shows how nutrition is effected. The mode in which, and the object for which, respiration is carried on, with the organs by which it is accomplished are next dilated on; then he considers the subject of animal heat, the manner in which it is generated, and the circumstances which affect it. The functions of the skin, and connected with them the use and necessity of clothing and the effects of bathing, are then presented to notice. In the part which treats of the bones and muscles, the circumstances of their growth and uses, the causes of deformities, exercise and rest are passed in review, leaving for the last part the consideration of the brain and nervous system, and of the various interesting points relating to them;—the subject of reproduction, for obvious reasons, is unnoticed. In the concluding chapter, he sums up beautifully the advantages of a careful attention to the laws ordained by a provident Creator for the healthy play of the functions, and the certain consequences of the neglect of these laws in all kinds of discomforts and "little miseries" so hard to bear, and later still in an impaired constitution and positive disease.

The publishers have issued this work in good style, with the exception of a few wood cuts, which mar its fair pages, rather than aid in the conception of the author's ideas. If wood cuts are necessary at all, the difference of cost between good and bad ones cannot be so great as to make the publisher prefer the latter.

C. R. K.

Art. XVII.—*On the Pathology and Treatment of Dysentery; being the Gulstonian Lectures delivered at the College of Physicians, in February,* 1847. By William Baly, M. D., Physician to the Millbank Prison, and Lecturer on Forensic Medicine at St. Bartholomew's Hospital. [From the London Medical Gazette.] 8vo. pp. 33: London, 1847.

These lectures present a very valuable contribution to the pathology of Dysentery. The ample opportunities which the extensive prevalence of that disease among the prisoners confined in the Millbank Penitentiary, afforded him, have been improved by the author, to investigate with care the true character of the intestinal lesions which constitute its morbid anatomy, and by a comparison of these with those described as occurring in connection with the dysentery of tropical climates, to determine the true relation the latter holds to the disease as it occurs in Europe.

The general result of Dr. Baly's observations goes to show that all the well-marked varieties of structural change in the large intestines, observed in tropical dysentery, are found likewise in fatal cases of the disease occurring in the climate of Great Britain.

In the least severe cases of dysentery, when the life of the patient was cut short, by some other malady, at an early stage of the disease, the morbid changes discovered in the colon or rectum are thus described by the author.

"The solitary glands in some part or other, generally in the rectum and sigmoid flexure of the colon, or in the cœcum, are swollen, forming round prominences on the surface of the mucous membrane, varying in size from a millet seed to a full-sized shot. These prominences are sometimes of a uniform pale red colour; at other times they have a ring of bright redness around their base, or present this evidence of vascular turgescence only at their summit."

"In two other cases, in which the symptoms of dysentery were rather more severe, life was cut short, in the one case on the eleventh day, by the supervention of a spasmodic affection closely resembling tetanus, and in the other case, on the twenty-second day, by pneumonia. Here the swollen solitary glands were surrounded by deeper and more extensive redness, and there was, besides, an evident disorganization of the summits of many of the prominences. These disorganized portions, forming minute yellowish sloughs, could be detached with more or less ease from the surrounding tissue, and in a few instances it was clear that the small sloughs had become detached before death, and had left small ulcer-like cavities in the spots previously occupied by the enlarged glands.

"The mucous membrane around the glands which exhibit these effects of inflammation, besides being red and tumid, is usually rough, or covered with a thin aphthous layer, which, by microscopic examination, I have found to be composed of particles of epithelium mixed with amorphous matter, probably fibrine. This mere roughness is, I believe, generally due to an altered condition of the epithelial investment previous to its being detached from the *membrana propria*. This roughened state sometimes exists over irregular spaces of a square inch or more in extent; each such patch having upon it two or three enlarged and altered glands."

Dr. Baly would call especial attention to the fact, that the small ulcers which are so commonly met with in all the more advanced stages of dysentery, are produced, at all events in their commencement, by a process of mortification, and not by ulceration.

"The solitary glands of the large intestines, in the acute stage of mild dysentery, cannot easily be shown to have cavities like the agminated and solitary glands of the small intestines found enlarged and inflamed at an early period of continued fever; they seem to be solid masses. But if death does not occur at an early period of the disease, and the inflammatory process owing to neglect of treatment or other causes, assumes the chronic form, then the cavity of each little gland is restored, and becoming much larger than in the healthy condition, secretes an increased quantity of fluid of an abnormal character"—"in some instances transparent, in others opaque and yellowish."

"In cases of dysentery of the *second degree of severity*, the effects of the inflammation are, as in the slighter cases, generally most marked in the solitary glands, of which a large number are affected. The mucous membrane between them, however, is likewise the seat of active inflammation. The glands lose their vitality, and are converted into small sloughs, but the mucous membrane in which they are imbedded is inflamed, and thickened, and is likewise altered on its surface. In the only case seen by Dr. B., which could be referred to the first fortnight's progress of this second degree of dysenteric inflammation, the mucous membrane was, at its surface, evidently converted into a thin lamina of dead tissue, connecting together the deeper sloughs that involved the solitary glands. The dead lamina here spoken of certainly implicated the membrana propria in the intervals of the mouths of the tubular follicles, but from its thinness seemed not to involve any much deeper portion of the mucous membrane. These changes in the solitary glands and the intervening mucous membrane occupied principally the prominences of the transverse rugæ of the colon. The surface of the membrane itself did not present much redness, but the submucous tissue of the rugæ appeared very full of blood when compared with the exsanguine condition of most parts of the body of the patient, who was the subject of phthisis. At a later stage, but while the inflammatory and destructive process still persists, the small sloughs enclosing the solitary glands are found to have been thrown off; the thin superficial layer of the surrounding mucous membrane which had lost its vitality, is also gone, leaving erosions of the surface; and the mucous membrane with the submucous tissue is in most cases much thickened, and turgid with blood and serum. The cavities which contained the sphacelated solitary glands appear as small round ulcers with sharply cut edges, resembling holes made with a punch, and give to the inner surface of the intestine somewhat of the aspect of a worm-eaten piece of wood. The ulcers communicate with each other here and there at their deepest part. In other places they have coalesced in their whole depth; and sometimes large ulcers have been formed, apparently by the destruction of the septa of mucous membrane which had previously separated many small ulcers. When the disease has affected the intestine only partially, the rugæ are the portions especially occupied by the small ulcers; and the large ulcers, when they exist, are almost always seated on the same prominent parts. The small round ulcers, for the most part, do not pass through the cellular coat, but the large ones commonly reach the muscular coat, and occasionally perforate both this and the serous coat."

"In another set of cases of the same degree of severity, the morbid changes found after death have been of a totally different character. The solitary glands have not apparently suffered more nor perished sooner than the surrounding mucous membrane; consequently no small round ulcers have been formed. But the entire mucous membrane, in larger or smaller tracts, where the inflammation has reached a certain height, has fallen into the state of gangrene, and these gangrenous portions, which are generally seated on the prominent folds of the membrane, subsequently becoming detached, leave large ulcer like excavations."

"Some differences in the appearance of the intestines in which the disease has taken this course, are produced by the age and constitution of the patient, and the period of the disease. In young adults, previously healthy, the mucous membrane around the gangrenous parts is intensely red. In old and feeble persons it is often almost devoid of redness. At an early period of the disease the sloughs are of a dark green colour and firm consistence; at a more advanced stage they are of a yellowish-white colour and firm consistence, and many of them have already become detached, leaving irregular excavations."

"In this form of dysenteric lesion, as well as in those previously described, where the solitary glands are especially affected, the disease attacks by preference the transverse rugæ and other prominent parts of the mucous membrane, the chief exception to this rule being met with in the cœcum, which, though nearly devoid of rugæ, is yet a very frequent seat of dysenteric inflammation; and the ulcers, whatever their size and shape, originate by a process of sloughing, and not by simple ulceration.

"Two forms of structural change, then, attend cases of acute dysentery of the second degree of severity. In the chronic stage they still retain distinctive characters. In the one we have large ulcers of irregular shape, chiefly occupying the situations of the rugæ and longitudinal bands, while, in the other, the predominant feature is constituted by the small round ulcers When the inflammatory action has continued long in a subacute form, the submucous coat in both cases is found much thickened, and at an advanced period of the disease, much indurated in the situation of the ulcers. The contraction of these thickened parts, in the manner of the cicatrices of burns, sometimes is productive of strictures of the intestine."

"Dysentery, in its *most severe degree*, is frequently fatal in a few days. The inflammation affecting a large extent of the mucous membrane, reduces it with extreme rapidity to the state of sphacelus. In the parts most intensely inflamed, the whole mucous membrane is found swollen, and of a dark purple colour, or its texture is disorganized, and its colour black, green, or brown."

"When inflammation of this degree of intensity affects a large extent of the intestine, death generally ensues very speedily. This is not, however, always the case; and when life is prolonged for several weeks, we see further stages of the disease, or perhaps, I should rather say, changes in the parts which the disease has destroyed, viz , the softening and the separation of the sloughs."

"It seems scarcely possible that life should be long maintained with a large portion of the alimentary canal in such a condition as this; but where the gangrenous process has not affected the coats so deeply, the patients survive for some time the loss, by sloughing, of the mucous membrane, and of much of the submucous tissue through more than half the length of the large intestines."

"When the lower part of the intestine is the seat of the disease, in cases of dysentery, a tolerably accurate estimate of the extent of mucous membrane affected may be formed from the mere quantity of bloody mucus discharged. The source of this bloody and mucous discharge in the acute stage of dysentery is not the solitary glands, but the tubular follicles of the mucous membrane." The granular matter contained in the solitary glands, Dr. B. found to be "composed of solid particles of flattened figure and strongly defined outline, resembling the nuclei of certain cells or globules; while the contents of the follicles were found to be, at one time, epithelial particles, at another, round nucleated globules, exactly resembling mucous globules. Now the bloody mucus discharged in dysentery, is composed of such nucleated globules, generally mixed with numerous blood-discs. Sometimes the globules are seen here and there still connected together in a cylindrical mass, such as they form while in the tubular follicle. The puriform matter occasionally discharged in acute dysentery has probably the same source. In the chronic stage of dysentery, also, pus, or a puriform matter, is often excreted. But here this matter seems to have a different source. It probably comes, in the slighter cases, from the enlarged and diseased solitary glands, and in the more severe cases from the numerous ulcers which have been left after the destruction of the glands, and of smaller or larger portions of the mucous membrane."

The foregoing extracts exhibit a very fair exposition of the anatomical lesions deduced by Dr. Baly, from the fatal cases which occurred at the Millbank Penitentiary, as those attendant upon the different degrees and stages of dysentery.

The whole of the observations of the author in relation to the disease are of a particularly interesting character. His remarks on its etiology deserve especial notice. Dr. Baly refers its production invariably to a malaria arising from the soil, and presents very plausible arguments to prove that such was its cause in the case of the Millbank epidemic; and in the extension of these arguments to prove its constant production in all situations by a telluric gaseous poison, he adduces the close alliance between dysentery and other diseases which are more indisputably of miasmatic origin, namely, common cholera and fever, and the fact that not merely have epidemics of dysentery in the penitentiary been preceded or followed by the prevalence of one or other of these diseases, but that an attack of dysentery has often been ushered in by cholera, or has been combined with fever, particularly typhus and typhoid, in the same patient.

The author's description of the symptoms of dysentery is particularly excellent, and it would have been complete had he, from the facts in his possession, indicated the relative frequency and value of the different morbid phenomena.

The plan of treatment laid down by Dr. Baly does not differ from that recommended by the best authorities upon the therapeutics of the disease.

The chief means that he has found successful in cases marked by the characters of a simple inflammation of the larger bowels, unattended by any morbid state of the system at large, except symptomatic fever, are, free local blood-letting by means of leeches, repeated at intervals of some hours, when the symptoms were urgent, and not readily subdued by the means first used; the administration of calomel and opium, generally in doses of two grains of the former, and one-third or half a grain of the latter every three, four, or six hours, as long as the character of the evacuations and the state of the local and general symptoms indicate the existence of inflammation, or until the state of the gums shows that the system is affected by the mercury.

"Mild aperients, also, have been found most useful in perhaps the majority of the cases, but especially in those where the lower part of the large intestine was the seat of the disease, and where the feces were retained, so that the evacuations consisted almost entirely of mucus tinged or mixed with blood. In these cases, the administration of one, two, or three drachms of castor oil has produced free feculent evacuations, and has afforded great relief to the symptoms. The beneficial effect produced by the action of this mild aperient medicine has often been very remarkable, greater than I know how to explain; while evil seemed always to result from allowing more than twelve hours to pass without obtaining a free feculent evacuation, if the frequent discharge of bloody mucus, and other signs, still indicated the persistence of inflammation. In many cases, however, no aperients whatever were required, free discharges of the feculent contents of the bowels taking place spontaneously. Indeed, where the cæcum and ascending colon were the seat of the disease, the active stage of the inflammation was almost always attended with copious discharges of liquid feces, and the subsidence of the inflammation was in great measure evidenced by the less frequent occurrence of these discharges, and their less liquid character. Very rarely, indeed, was a more active purgative than castor oil found requisite in the acute stages of dysentery. In some instances, owing to the irritable state of the stomach, small doses of saline purgatives have been substituted for the castor oil, but whenever they have acted with much violence they seemed to do harm."

"Calomel, even in small doses, and combined with opium, has, in some cases, increased the irritation of the large intestine; great advantage has then resulted from substituting for the calomel the gray mercury with chalk, of the Pharmacopœia, in combination with Dover's powder.

"When the symptomatic feverishness was considerable, the skin was generally dry as well as hot, and then some benefit has been derived from the use of antimony, ipecacuanha, and other diaphoretic remedies. But ipecacuanha has wholly failed in Dr. B's hands as a specific, or in any way active, remedy for the disease."

The local blood-letting, the calomel and opium, and the mild aperients, were the remedies to which the physician looked for the cure of the disease. But there were other remedial means from which the patients in many cases derived more sensible relief from their sufferings. To these means, however, of which the principal were opiate enemata to relieve the tenesmus, large warm poultices to the whole abdomen, and medicines to allay symptomatic vomiting, Dr. B. merely alludes. He remarks that whenever, from the age or debility of the patient, it appeared desirable to give moderate quantities of a stimulant, such as brandy, no harm ever resulted from its use. On the contrary, a beneficial effect, we are told, was produced, however active the local inflammation might be.

"It may be thought," remarks Dr. B., "that this was owing to the prisoners having been weak from long-continued confinement. But there was no strongly marked sign of such weakness, and, when general blood-letting appeared to be called for, it was borne well. Indeed, the principal reason for preferring local blood-letting, even in severe cases, was that it seemed to be more efficacious, and not that any symptoms contraindicated general depletion."

"I need scarcely say," Dr. B. observes, "that the diet allowed in the earlier stage of dysentery, consisted merely of milk and farinaceous articles of food."

D. F. C.

Art. XVIII.—*Cholera, Dysentery, and Fever, Pathologically and Practically Considered; or the Nature, Causes, Connection, and Treatment of these Diseases, in all their Forms.* By Charles Searle, M. D., M. R., C. S. E., &c. &c. 12mo. pp. 120: London, 1847.

Dr. Searle will unquestionably deserve the gratitude of every student of medicine, for even this attempt to compress within eighty duodecimo pages, printed in a type so large that almost the feeblest eyes may read it—the entire etiology, symptomatology, pathology, and therapeutics of some of the most important diseases which the physician is called upon to treat, and this too in a style professedly adapted to the comprehension of the unprofessional as of the professional reader. That the author has attempted all this, he has himself expressly declared. —Thus, in his Introduction, he states,

"In the construction of this treatise, I have endeavoured, in the few pages of which it is composed, to embody, in a style which may be understood by all classes, a comprehensive view of cholera in all its bearings. First, as regards its nature; then its most frequent causes, and the operation of those causes in developing the symptoms; next the indications of cure, as pointed out to us by Nature, and after this, the remedies which principle directs and experience has proved to be most successful in its treatment. This is followed by a detailed account of the practice which should be pursued, from the first moment of visitation, and through the various stages of the disease, in all its forms, from simple diarrhœa to its severest species, including that. also, of dysentery; and, subsequently, the treatment of the inflammatory febrile affection which so frequently succeeds to the attack of cholera, is also particularized, thus rendering the whole a complete, though concise, treatise on the subject, practically available to every person, professional or otherwise, in the hour of necessity. This is followed by the subject of fever, in which I have explained its phenomena, or pathology, its varied character, as modified by its numerous causes and the diversified circumstances under which it exhibits itself; occurring either as simple continued fever—as an effect of cold, or of influenza, bilious fever, scarlet fever, erysipelas, rheumatic fever, typhus fever, &c. &c., and with respect to all of which I have endeavoured clearly to explain."

"Upon the subject of fever, I trust it will be found that I have robbed this 'will-o'-the-wisp' of its proteiform disguise, and exhibited it in its unsophisticated character, not, as Broussais and Clutterbuck have taught, as the consequence or effect, at all times, of inflammation, but as a reality in itself—a condition of the circulating system, which I have denominated that of *irritation*—an excited condition of the small vessels, intermediate between that of active inflammation, and the passive condition of congestive repletion,—a condition of the general system which may be brought about by a great variety of causes, but all referable to two distinct heads, which afford the two leading principles of treatment applicable to all cases."

The work before us, viewed as a mere catalogue of the author's general conclusions, in regard to the nature, relations, and treatment of the diseases enumerated—as the simple outline of his pathological and therapeutical views—is not without interest. His suggestions are often plausible—sometimes probably correct. But he has certainly failed to prove anything—to reason out or support by facts the theories he presents, or the correctness of the practice he directs. Often his positions are the simple expression of mere truisms, without an attempt at explanation—without adding a single mite to our knowledge. Take for instance, the following.

"I may venture, without fear of contradiction, to say, that the influencing cause (of epidemic cholera), consists in some condition of the atmosphere, which operates by reducing the active powers of the system, and subverting the normal or natural healthy manifestations of life, and may, therefore, without impropriety, be called poisonous."

In some instances, Dr. Searle, however, is more definite in his exposition of the causes of disease, and what has occasioned to others much doubt, and in relation to which they have not been able to arrive, after the closest investigation, at anything like a positive conclusion, he settles in a few words.—Thus of malaria, speaking of sporadic cholera, cases of which are of frequent occurrence in autumn, "from the combined influence of debility of the system, and derangement of the biliary and associated organs, which so generally ensue from the preceding hot weather,—and malaria, which, at that season, is so much more abundantly developed by the agency of heat, and issues from drains, sewers, or wherever animal or vegetable substances exist in process of decay; its effects being, however, more particularly manifested in damp, filthy, low, or confined situations,—the individual in the condition of predisposition to disease above mentioned, being exposed to its influence, and inhaling such malaria, having his blood, it may be said, truly poisoned thereby."

But what is this malaria—the nature and character of which have been so long inquired after, by a host of medical philosophers in vain? Hear Dr. Searle—

"Sulphuretted hydrogen, one of the offensive gases issuing from sewers, and a product of the decomposition of animal and vegetable substances, is so truly poisonous to the animal system, that a bird, or other small animal, exposed to an atmosphere containing but one fifteen hundredth part of this gas, dies almost immediately from its effects; and a horse has been killed by exposing it to breathe an atmosphere containing but one-two hundredth and fiftieth part. That malaria, which is a compound of this and some other gases equally noxious, developed by the decomposition of animal and vegetable substances, wherever they exist, may be truly affirmed to be a poison; and which under certain conditions of the atmosphere and states of the system, will produce cholera; and under other circumstances of exposure to its influence, will occasion typhus fever, dysentery, scarlet fever, erysipelas, rheumatic fever, influenza, or other modification of fever of a remitting type with local affection—either of the brain, lungs, or abdominal organs. The various states of the system, age, season of the year, condition of the atmosphere, composition of the malaria, its virulence, and length of time the individual may have been exposed to its influence—all being modifying circumstances influencing the results, or disease, to which it gives rise."

So much for the author's views of the etiology of disease. The manner in which malaria acts in the production of disease, is by subverting the vital process of calorification; by diminishing the vital combustion, and reducing thereby the active energies of the system—calorification being, according to Dr. Searle, the primum mobile, or mainspring of all the functions.

"The heart's power being thus reduced, the blood is not freely circulated, and stagnation, or congestive accumulation of blood in certain of the vessels takes place, and in those vessels more particularly in which the circulation is most feeble, or those the most remote from the heart's influence—or power of keeping the blood they contain in free circulation, and which is most especially the case in the veins of the stomach, bowels, liver, and spleen; and here, accordingly, stagnation of blood, or congestive fullness of the vessels, more particularly occurs."

The engorged and over distended vessels of the stomach and bowels, cause an exudation or pouring out into the alimentary canal, of the aqueous portions of the blood, or a portion of their more fluid contents.—Hence the watery evacuations in cholera; which are colourless, because the congested state of the liver prevents the secretion of bile. The cold profuse sweating in cholera, is the result of a simple exudation from the congested vessels, of the surface of the body.

Diarrhœa is, according to Dr. Searle, the result of a similar congestion of the vessels of the intestines—though less in extent—to that which takes place in cholera.

If the case of cholera be a protracted one—the watery purgings, with general inertia, cold, and depression of the circulation—will be followed by gastro-enteritis—indicated by its distinctive symptoms.

"The characters of the aforesaid symptoms," remarks Dr. Searle, "should be clearly understood: they consist of a sub-acute inflammation of the mucous membrane of the congested bowels, developed by the stagnant blood in the veins of the parts retarding the blood in its passage from the arteries, and thereby distending the latter, and exciting them into inflammation. This inflammation of the bowels implicates the lining membrane of the stomach also, and extends, if the patient live long enough, by means of the biliary duct, which opens into the bowels, to the liver also—to the extent, at least, of producing irritation, and the excitement of increased secretion of the bilious fluid: and the fever, which attends it, is developed in the same manner, that is, by the congestion of the venous system in general, retarding the blood in its passage from the capillary arteries, and exciting them, by reason of their distension, to irritation, or a condition of increased action—but short of that which exists in inflammation, and which, as constituting fever, will take place or not, as there may be power sufficient in the system, or the blood possess the requsite amount of oxygen and excitable qualities for the purpose."

Diarrhœa, according to Dr. Searle, is the mildest and most prevalent form of disease, resulting from the united influence of heat and malaria, followed by the conspiring one of cold, or other concomitant circumstance.—Dysentery is another variety, and the congestive typhus of Armstrong another—the latter being intrinsically the same disease as cholera, modified by climate, and is the form in which, perhaps, in its severest degree, it more frequently manifests itself in England.

"If fever and cholera both take place from the same cause—malaria—it may be asked, what constitutes their difference? In reply, I would say—in the operation of that cause; its amount, virulence, and intensity, as aided by concurrent circumstances! Thus, we see fever with dysentery symptoms, lapsing—by the accessory agency or augmentation of depressing causes—as a humid state of the atmosphere, an attack of indigestion or the like—into cholera. The condition of the system in the latter case, being that in reality of the cold stage of fever, in augmented degree. The native energies of the system being too much prostrated, by the extent of the cause, to bring about the reaction of the febrile condition; and hence the fact—that in the process of successful treatment, as amendment takes place, febrile action is developed."

"The disease above noticed, is in reality nothing more than the ordinary form of remittent or malarial fever of tropical climates, but to which it is by no means peculiar, it being the disease to which travellers are exposed during the summer months in the Italian States, the islands and shores of the Mediterranean, the banks of the Rhine, and as prevalent in France, Spain, Portugal, and during the autumnal months in England; and which malarial fever, when attended with bilious vomiting, or pain in the side or head, is often called bilious fever; and which, moreover, under particular circumstances, gives occasion not only to inflammation of the stomach and bowels, or symptoms of gastro-enteritis and dysentery, but also, under other circumstances or states of the system, to other local inflammations of the membranous structure—such as of the joints, the knee, wrists, or other, occasioning pain and swelling of the part, and thus developing rheumatic fever; or of the membranes of the brain, then constituting brain fever; or, as I have often known in India, the same cause affecting the membranous coats of the eye, and occasioning muco-purulent ophthalmia, or the inflammation of the eye common to Egypt; or the malarial cause may give rise to a condition of *irritation*, or a less perfectly developed form of inflammation of the membranes of the brain, or spinal marrow, or sheaths of the nerves, and occasion then all the varieties of neuralgia (or nervous pain), and spasmodic attack, as sciatica, tic-doloureux, epilepsy," &c.

After a rapid sketch of the pathology and principles of treatment of intermittent and remittent fever, fever from cold, with local inflammation,—all comprised in seven pages—the author presents us with the following general summary—

"Thus, if to the cause of intermittent fever—malarial impregnation of the blood, there be superadded, as an effect of heat—congestive fullness of the liver or bowels, and derangement of the associated organs; or the same symptoms as effects succeeding to cold, there will in either case be, more or less pain in the region of these organs, sickness of stomach, and inflammatory irritation evinced, modifying, in a greater or less degree, the febrile attack; or, if these symptoms exist in a preponderating proportion, they may obscure or mask the intermittent febrile one altogether; and thus, in proportion to the predisposing circumstances and constitutional disturbance which pre-exists, augmented in amount by the supervention of the malarial disease, a simple intermittent fever, or such as would ensue in a more healthy individual, is converted into a remittent, or a graver form of disease, with local inflammation and complexities daily augmenting in number, if the disease be not by timely means arrested: and thus are typhus and the graver forms of fever developed. And now, with reference to the *predisposing circumstances* and character of the attendant symptoms; in a man of intemperate habits, or another with congestive fullness of the liver and bowels, the excitement of fever succeeding to the malarial cause, will develop bilious vomiting, or inflammation of the liver, with pain in the side and difficulty of breathing; or inflammation of the stomach and bowels, or dysentery; or, in Europe, where cold is simultaneously in operation, and the lungs and air passages in consequence exposed to affection, inflammation of the lungs, or bronchitis; or the throat, as in scarlatina—will be more particularly affected, and thus will the fever be modified in character by the organ affected, and function it fulfils. The head also, is frequently affected; the brain, especially in persons who suffer from care and anxiety, perturbation, or excess of mental employment, and not less so in young children, is very frequently affected; and thus the pain or giddiness of congestion of the brain, or the delirium of excitement, which so frequently attends this form of fever. And again, as I have elsewhere said, in persons of a rheumatic or gouty tendency, swelling and inflammation of the joints, one or more, and often migrating from one to the other as from the knee to the wrist, or elsewhere, ensue; or, as I have known in India, and seen prominently in the garrison of Vellore, men going on duty as sentinels at night, and returning from guard in the morning, with their eyelids swollen and extremely painful, and the most inveterate form of muco-purulent ophthalmia follow as a consequence. And again in this country, from some no less obscure agency, or modifying circumstances, developing erysipelas. And I may mention also, women in childbed, its developing fever, or otherwise modifying the character of the inflammation of the peritoneum, or uterus, which is apt to succeed. And to this catalogue of malarial fevers, I might add many others—malaria being the ordinary exciting cause, I believe, of influenza, modifying the usual effects of cold, and developing this now too frequent affection."

"And lastly, I may observe, to the development of the graver affection of typhus fever, we have only to look to the locality in which it is more frequently to be found, and the class of individuals more commonly the subjects of its attacks, to discern that it is a disease made up of an assemblage of the aforenamed elements, developed by cold, malaria, unwholesome diet, and deranged secretions, simultaneously or successively operating; one class of symptoms preponderating in one season, or under certain especial circumstances of its visitation—and another group in another, under different limitations; and thus, at one period, to be remedied by calomel, diaphoretics, and evacuants more particularly; and at another period by quinine and stimulants, or under ordinary circumstances, by both timously employed. Its treatment in general, should bear reference to the preponderating symptoms at the time being, bearing ever in view the leading feature or fact in the case—that the disease is essentially based upon debility! The excitement of organs or inflammation present, being not the cause, but the consequence of fever and of general derangement,—a fact that must be ever borne in mind, and influence us in the whole class of malarial and remittent types of fever; and especially so, with regard to blood-letting, which, in relief of general fever and local inflammation, however properly it may be had recourse to at the early period of the disease, can seldom be practised with impunity at a later period; leeches, followed by a blister, are, therefore, the more appropriate remedies in these cases."

The foregoing extract, which occupies three pages and a half of Dr. Searle's treatise, will give to our readers a tolerably correct idea of the pathological views inculcated by the author. Some may conclude, that we have given too much space to an exposition of them. We have been desirous of doing justice to the work before us, and of allowing Dr. Searle to explain his doctrines, as far as we were able, in his own words. He believes, that his opinions in regard to cholera, are "as deserving of respect, as those of any man living"—while he trusts, that in respect to fever, he has "stripped it of its protean disguise, and advanced sufficient reasons why his opinions on this subject, also, have more than ordinary claim to attention."

We feel no disposition to attempt the refutation of, or to undervalue in the least, the pathological or therapeutical views of the author. There is much in relation to both which we approve. Dr. Searle has, however, in our opinion, made a few very great mistakes; first, in attempting to compress too much in too small a compass; secondly, in addressing his work to the unprofessional as well as to the professional public; and thirdly, in merely setting down his opinions in regard to the nature, causes, and connection of disease, without attempting to reason out these opinions, or adducing the series of facts by which their accuracy is established. His explanations are often the expression of mere truisms, and do not advance us the least towards a knowledge of the subjects to which they refer, while, occasionally, he presents as an established truth what is still matter of dispute, or at best merely a probable conjecture, to be proved or disproved by future observations.

Dr. Searle calls upon "the press generally, to aid him in the circulation" of his treatise, while "at the same time, he calls upon the profession and *all mankind* either to confute him in argument, or to exhibit by facts, reasons why the practice enjoined, and treatment recommended, should not be accepted as *deserving universal adoption!*" We really do not believe that the work before us possesses such transcendent merit as to require us to make any very particular exertion to aid in its circulation. The pathological views of the author will not, in all their details, bear, we fear, the test of a very strict examination, and although his therapeutical directions are, generally speaking, judicious, still we cannot in truth say that they are so perfect as to deserve universal adoption. D. F. C.

ART. XIX.—*The Practice of Medicine: a Treatise on Special Pathology and Therapeutics.* By ROBLEY DUNGLISON, M. D., &c. &c. Third edition, 2 vols. 8vo: pp. 767–704. Philadelphia, Lea & Blanchard.

THE work of Dr. Dunglison is too well known to require at our hands, at the present time, an analysis of its contents, or any exposition of the manner in which the author has treated the several subjects embraced in it. The call for a third edition within five years from the appearance of the first, is, of itself, a sufficient evidence of the opinion formed of it by the medical profession of our country. That it is well adapted as a text-book for the use of the student, and at the same time as a book of reference for the practitioner, is very generally admitted; in both points of view, for accuracy and completeness, it will bear a very advantageous comparison with any of the numerous cotemporary publications on the practice of medicine, that have appeared in this country or in Europe.

The edition before us bears the evidence of the author's untiring industry, his familiarity with the various additions which are constantly being made to our pathological and therapeutical knowledge, and his impartiality in crediting the general sources from which his materials have been derived. Several pathological affections, omitted in the former editions, are inserted in the present, while every portion of the work has undergone a very thorough revision. It may with truth be said, that nothing of importance that has been recorded since the publication of the last edition, has escaped the attention of the author; the present edition, may, therefore, be regarded as an adequate exponent of the existing condition of knowledge on the important departments of medicine of which it treats.

D. F. C.

Art. XX.—*Tracts on Generation.* Translated from the German. By C. R. Gilman, M. D., Prof. of Obstet., College of Phys. and Surg., New York, and Theodore Tellkampf, M. D., Gebhard Professor, Columbia College. No. I.—*Proofs that the Periodic Maturation and Discharge of Ova are, in the Mammalia and the Human Female, independent of Coition, as a first condition of their Propagation.* By T. L. G. Bischoff, M. D., Prof. of Physiology, &c., Giessen. 8vo. pp. 65: Samuel S. & William Wood, New York, 1847.

Upon the suggestion of Prof. Agassiz, the translators were induced to render into English this valuable pamphlet of Dr. Bischoff, a pamphlet justly commended by Prof. A. as "*a model in this kind of experiments.*" In this opinion we cannot but concur, as we have already not only expressed our admiration of it, but, as will be seen by reference to the number of this Journal for January, 1845, have made it, chiefly, and the work of Pouchet and Raciborski, the basis of an extended notice of the new theory of the spontaneous and periodic evolution and discharge of ova in all the mammalia,—a fact which the translators appear to have overlooked; so that not only the conclusions of the author, but his mode of experimenting, have been known here for three years past.

The translation is well done, faithfully representing the author's views and opinions; and we sincerely hope that the translators may be encouraged by liberal patronage to go on in the good work they have commenced, that of continuing the series of tracts, with translations of other interesting and original monographs, on the subject of generation. The aid of Prof. Agassiz is promised them in making their selection, a guarantee that it will be judicious.

The typography and paper are unusually good. C. R. K.

Art. XXI.—*Obstetric Tables: Comprising Graphic Illustrations, with Descriptions and Practical Remarks, exhibiting, on dissected plates, many important subjects in Midwifery.* By G. Spratt, Surgeon-Accoucheur. First American Edition, from the Fourth and greatly-improved London Edition, carefully revised, and with additional notes and plates. 4to: Wagner & McGuigan, Philadelphia, 1847.

The object and general character of the present publication are fully set forth in the title-page. It comprises nine plates, illustrating the anatomy of the female organs of generation; the general form and structure of the pelvis, and some of the most common deformities to which it is liable; the anatomy of the uterus and its appendages, and the changes in form and position it undergoes during the several stages of pregnancy; the progressive development of the ovum and fœtus; the presentation of the fœtal head; the operation of turning; the application of instruments, and the Cæsarian operation. These plates are all accurately drawn lithographs; many of them, on a well-devised dissected plan, exhibiting, with tolerable correctness, the relations of, and the progressive changes in, the objects they represent. The obstetric tables of Mr. Spratt are certainly well adapted, so far as any work of the kind can be, to aid the student of Midwifery in acquiring much useful knowledge, and to recall to the mind of the young practitioner, subjects of which his recollections are liable to become obscured or confused, unless occasionally revived by plates, models, preparations, or some appropriate apparatus.

The work, like every other of a similar character, however unexceptionable in point of execution, can be viewed only as an aid to study, and not as the sole means of acquiring a knowledge of the subjects to which it relates. It is only when used as an assistant to the more direct means of investigating the structure of the organs concerned in conception, pregnancy, and parturition, the mechanism and progress of labour, and the proper application of manual assistance to aid or supersede the natural powers in the delivery of the child, when these are insufficient, that works of this kind can be considered as serviceable or proper.

The descriptions of the objects delineated in the tables before us, are clear and accurate, and the concise practical directions and remarks, contained in the text, sound and judicious. D. F. C.

Art. XXII.—*Principles of Human Physiology, with their Chief Applications to Pathology, Hygiene, and Forensic Medicine.* By William B. Carpenter, M. D., F. R. S., Fullerian Professor of Physiology in the Royal Institution of Great Britain, &c. &c. Third American, from the last London Edition; with Notes and Additions, by Meredith Clymer, M. D., &c. &c., with three hundred and seventeen Wood Cuts, and other Illustrations. Philadelphia, Lea & Blanchard, 1847: 8vo. pp. 752.

The exposition of the Principles of Human Physiology by Dr. Carpenter, has been too long before the public, and its merits too accurately appreciated to render it necessary for us, on the occasion of this new edition, to add anything to the commendation we felt it our duty to bestow upon the work on its first appearance. The very faithful and finished outline which the author has presented of the present state of Physiology, will always render these elements a favourite manual for the study of that science. In the edition before us, every portion of the work has been carefully and thoroughly revised. While Dr. Carpenter has been careful to incorporate all the important additions that have been made to Physiology, since the appearance of the preceding edition, he has entirely remodelled a large portion of it.

"Among the principal additions, will be found a chapter on the varieties of the Human Race, intended to convey to those, who have not time or opportunity to peruse Dr. Prichard's elaborate treatises, a general view of his arguments and conclusions. The account of the primary tissues, also, which was formerly included in the chapter on Nutrition, has been extended in a degree commensurate with the author's estimate of its importance, and has been made to form a distinct chapter, nearer the commencement of the work. Other additions and changes, which constitute, when taken collectively, no inconsiderable proportion of the entire treatise, are scattered through the volume."

The American editor has very ably performed his task. Of the value of the notes added by him to the former editions of the work, the fact of many of them having been incorporated by the author in the text of the present, is sufficient evidence. The new matter added to the edition before us, by Dr. Clymer, enhances very materially its value—they are chiefly such as the rapid advance of Physiology demanded in order to bring the work up to the present day.

A considerable number of new wood-cut illustrations have been introduced by the author. Many of them from original drawings. The editor has likewise added numerous additional illustrations, very accurately and beautifully illustrated.

We can with great confidence, recommend the present edition of the Elements of Dr. Carpenter, as a faithful representation of the actual condition of Physiological science; sufficiently clear and compendious to adapt it for the use of the student—and sufficiently practical in its tendency to lead its readers to the useful application of the facts and principles it places before them. D. F. C.

Art. XXIII.—*Females and their Diseases; a Series of Letters to his Class.* By Charles D. Meigs, M. D., Prof. Midwifery, and Diseases of Women and Children, in Jefferson Med. College, &c. &c. &c. Philadelphia, Lea & Blanchard, 1847: pp. 670, 8vo.

The late period at which this volume reached us, prevents our doing more than merely announcing its publication, and noticing the beautiful manner in which it has been got up. The position, reputation and experience of the author claim for anything which emanates from his pen, a respectful consideration, and we shall devote some space in our next number to an exposition and examination of the contents of this work.

Art. XXIV.—*The American Medical Almanac for* 1848: *Containing Statistics of the Various Medical Colleges, Hospitals, Dispensaries, &c. &c. of the United States; together with other Information of Value to the Physician and Student.* Philadelphia, Lindsay & Blakiston: pp. 224, 12mo.

The design of this publication is to present "a condensed view of the condition of the Medical Schools of the United States, with their means of imparting medical instruction, with some account of the various hospitals, dispensaries, asylums, and other medical institutions of the country, and such other miscellaneous information as may be thought useful or interesting to medical men." Though this design has been very imperfectly carried out,—no mention, for instance, being made of two of the four hospitals of our own city,—still the volume contains much interesting information, and is deserving of patronage. We would urge upon the various Medical Institutions of the country, the propriety of furnishing the editor the information he has solicited, so as to enable him to render the volume for next year more complete. We must also express the hope that hereafter the volume will be accompanied by an index to facilitate reference.

Art. XXV.—*Summary of the Transactions of the College of Physicians of Philadelphia.* From June to November, 1847, inclusive. No. 3, vol. ii.: pp. 46, 8vo.

The present number of the proceedings of the college, contains, among other matters, a summary of some interesting discussions relative to the typhus fever which prevailed, to some extent, during the past year, and the annual Report on Surgery by Dr. Isaac Parrish. This last is devoted, exclusively, to the subject of Ethereal Inhalation, and is drawn up with marked ability; but we regret we cannot add with equal impartiality. The philanthropy of the author seems to have taken fire at the idea of our possessing a means of preserving patients from the pains of the surgeon's knife, and instead of a cool, philosophic, and impartial investigation into the powers of ether, its efficiency and safety, he has given us an eloquent eulogy—all the vaunted effects of the article are painted in the most glowing colours—whilst its asserted ill effects are explained away, or glossed over, or omitted. We have not space, however, to discuss this subject, nor do we feel, as yet, at all prepared to do so. We must content ourselves, at present, with collecting the materials as they are brought to light, which will hereafter enable us to form a judgment relative to the effects of ethereal inhalation, the safety and propriety of resorting to it, and particular cases to which it is applicable.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the Principle of Vital Affinity, as illustrated by recent Observations in Organic Chemistry.* By Dr. Alison, Professor of the Practice of Physic in the University of Edinburgh.—The objects of this paper are, *first,* to vindicate the use of the term affinity, and assert the principle which that term is intended to express, viz., that in living bodies ordinary chemical affinities undergo a certain change or modification, either by the addition of affinities peculiar to the living state, or the suspension of some of those which act elsewhere; and, *secondly,* to attempt, from a review of facts recently ascertained, an exposition of the laws, according to which these modifications of ordinary chemical affinities take place, and a discrimination of those changes in living bodies, which may be ascribed to them.

In proof of the first of these points, the author referred particularly to the facts known as to the formation of starch, or its allied compounds, from carbonic acid and water, by an action of certain parts of living vegetables under the influence of light, whereby the carbonic acid is decomposed and oxygen evolved; maintaining that this change, essential to the condition of all organized bodies, is so distinctly at variance with the ordinary chemical relations of carbon and oxygen, and even with those which show themselves in other parts of vegetables in the living state, and in all parts in the dead state—that we are equally bound to regard it as a strictly vital phenomenon, as the contraction of a muscle on a stimulus: and that we cannot rightly apprehend either phenomenon unless we regard them as dependent on certain laws of vital action or of vitality.

On the second point, he observed, that the physiologist is concerned only with those formations and resolutions of organic compounds which take place in the interior of living bodies, and that, premising that the first introduction of every species of organized being into the world must have been by a miraculous interposition of Divine Power, beyond the limits of scientific inquiry, the objects of investigation in this department of physiology appear to be more definite, and the strictly vital affinities which now operate, from the commencement of the life of vegetables to the death and decomposition of animals, to be fewer and simpler than had generally been supposed.

I. The first kind of action which may be ascribed to vital affinity, he described as the mere selection and retention, by certain portions of a solid, of certain substances, whether elementary or compound, already existing in a fluid that is brought in contact with it, or what is called by some a chemical filtration. This power is exemplified in living vegetables, particularly in the appropriation by them of some of the earthy and saline matters which are brought to their roots, and the rejection of others; it is more strikingly seen in the development of the lower classes of animals, especially those of the radiata and mollusca, which have horny or earthy integuments; and it is certainly the chief power concerned in all those functions of animals, to which we give the names of absorption, secretion, and even nutrition.

In regard to this simplest form of vital affinity, the following points seem ascertained:—

1. That it is usually, if not always, performed in a perfect organized being, by an attractive agency of living or growing cells, which seem always to perform the double office of extracting from the nourishing fluid the material of their own growth and reproduction, and extracting also the fluid or solid matter which they are to contain, or with which they are to be incrusted.

The matters thus consolidated from a fluid in which they previously existed, by a simple process of attraction and increased aggregation, not precipitated by any chemical separation of their component parts, assume the forms peculiar to each organized body to which they are thus added, but retain that peculiarity which in organic matter exists only in fluids—that the smallest portion of them contains all the chemical ingredients which belong to the mass, and thus any crystalline arrangement is prevented.

2. That no difference of form, or of composition, can be detected in the different cells of an organized structure, to explain the difference of the matters which they thus extract; and that, in the first development of organized beings, the difference of selecting power exercised at different points of the germinal membrane, appears to be determined by no other condition than their *position*—just as different portions of nervous matter, differing only in anatomical position, exert perfectly different vital powers, or, in the state of disease, (*e. g.* of inflammation,) peculiar attractions and repulsions appear to exist, for a time, simply at particular spots of the vascular system.

The attractions by which living cells thus appropriate to themselves portions of contiguous fluid, are obviously analogous to those by which even inorganic porous substances attract different fluids with different degrees of force, and thereby produce the phenomena of endosmose and exosmose, but are broadly distinguished from them by the peculiarity of the changes thus effected, by their infinite variety, even in different parts of the same structure, and by their uniformly temporary existence.

II. The actual transformations, or new arrangements of the chemical elements which take place in living bodies, and are peculiar to them, are illustrated by the examples of the formation of starch from water and carbonic acid, oxygen escaping; and of the formation of fat from starch, carbonic acid and water escaping.

It appears to be in the *cells* of organized structures that those transformations are likewise effected; and as the action of cells in simply extracting portions of the nourishing fluid, is analogous to the physical principle of endosmose, so their action in these metamorphoses may be illustrated, but by no means explained, by comparing them to those chemical actions to which the term catalysis is applied.

Two general observations may be made on both these modifications of the power of vital affinity—*first*, that they are obviously *transferred* from the portions of matter already endowed with them, to those which, in the growth of living beings, are added to, or substituted for, those portions of matter; just as muscular fibres already existing, communicate to all the matter which is added to them by the process of nutrition, the same contractile properties which they themselves possess; *secondly*, that every portion of matter to which any such vital properties are imparted, appears to enjoy them only for a short time; losing them so rapidly that a vital process of absorption and excretion is necessary, throughout the whole existence at least of animals, to eliminate from their bodies materials which have lost these properties and reverted to the condition of dead matter.

After stating these general principles regarding vital affinities, the author made some more special remarks on the most fundamental of all the changes in organized beings which may be referred to their action, viz., the formation of starch and its allied compounds from carbonic acid and water under the influence of light, and consequent purification of the atmosphere; and he insisted chiefly on the following points:—

1. That this change is probably gradual; the carbonic acid being taken into the juices of the plant and slowly decomposed there, more or less completely, accord-

ing to circumstances, whence result not only starch, or its allied compounds, but likewise different organic acids and various oils.

2. That the formation of sugar in plants is probably to be regarded rather as a simply chemical action than as a result of vital affinities; or that it is a first product of the decomposition of starch by the agency of water and oxygen.

3. That, on the other hand, the formation of lignin, containing more carbon and less oxygen, from starch or from cellulose, and from the carbonic acid and water brought into the cells, appears to be the result of a strictly vital affinity, strongest at the period of greatest vigour of the plant.

4. That in this, as in other of the metamorphoses which take place in living beings, and which he proposes farther to examine, the carbon, thus originally fixed on the earth's surface from the atmosphere, appears to be the chief material employed by nature for the formation of all organized structures, and to be invested, for that purpose, with peculiar and transient vital affinities, while oxygen hardly appears to exert any chemical powers in living bodies, different from those which it manifests elsewhere; but is taken into the interior of all living bodies, only that it may support the excretions which are continually going on in them, and resolving organized into inorganic matter; and thus, that it gradually resumes its power over the carbon which had been temporarily separated from it for the formation of the animated part of creation.—*Proceedings of the Royal Society of Edinburgh*, 1846.

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2. *On the Nature of Tetanus caused by Strychnine.* By Prof. Hermann Meyer, of Zurich.—The tetanic convulsions, which follow the exhibition of Strychnine, are well known; as also the fact that these convulsions can be readily excited as reflex movements. The general use of strychnine in experiments on the nervous system is very much based on the knowledge of these facts, and invites to a discussion of the question as to the mode in which the tetanus originates. The following experiments were instituted for this purpose.

Exp. I. The crural nerve of a frog, suffering from convulsions induced by strychnine, was divided; these immediately ceased in the limb.

Exp. II. No convulsions took place in a limb, in which the nerve had been divided previous to the exhibition of the poison.

From these well known experiments, it follows that the originating cause of the convulsions must be sought for in the central parts of the nervous system. But the question ensues, does the tetanus originate from an affection of an individual portion of the central organ, or in an affection of every individual portion? The following experiments, also somewhat well known, tend to throw some light on the subject.

Exp. III. The brain was removed from a frog; tetanus ensued in the trunk.

Exp. IV. Brain and cerebellum removed, result as in the preceding.

Exp. V. Medulla oblongata removed; same result.

Exp. VI. Medulla oblongata divided; general tetanus ensued.

Exp. VII. The spinal marrow was removed posterior to the giving off of the nerves to the anterior extremities; result as in the preceding case.

From these experiments, it follows that the origin of the tetanus is to be sought for in some cause common to all the central organs of the nervous system. The following experiments show what this cause is.

Exp. VIII. The posterior column of the entire spinal marrow was removed from a frog by means of a fine pair of scissors. A solution of strychnine was then either exhibited by the mouth, or applied directly to the spinal cord. Convulsions occurred only in the jaws and eyes.

Exp. IX. The posterior column of that part of the cord giving off nerves to the posterior extremities was removed. Tetanus occurred only in the head and anterior extremities.

Exp. X. The same portion of cord giving off nerves to the anterior extremities, was removed. Tetanus occurred only in the head and posterior extremities.

From these experiments, the author thinks himself entitled to conclude, that the presence of the motor nerves, even though uninjured, does not suffice to produce tetanus; but that there must also be an uninterrupted connection of the sensory and motor fibres within the central part of the nervous system. The only motions, however, which we recognize as dependent on the sensory fibres, are those which we know to be the cause of reflex movements. The above experiments, therefore, would lead to the conclusion, that tetanus caused by strychnine arises entirely from general reflex movements, and that the action of the strychnine not only excites the motor fibres, but goes to increase the necessary cause from which reflex movements arise. If this be true, tetanus must cease, even when the spinal marrow is uninjured, provided the conditions under which reflex movements arise are removed. In order to test this, the following experiments were instituted:—

Exp. XI. The skin of a frog was rubbed over with strong prussic acid (30 per cent.), so that the superficial peripheral extremities of the nerves were paralyzed. Strychnine was exhibited; no tetanus ensued, except when the animal was strongly shaken (thrown about, for example).

Exp. XII. After laying open the spine of a frog, the posterior nervous roots were divided. Same result as above, or as when the posterior column of the cord was irritated with a needle.

Exp. XIII. The same experiment was repeated in a frog in which tetanus was present; it ceased immediately on division of the posterior roots, and only recurred under the conditions first stated.

From these experiments, then, it may be concluded, that tetanus arising from the action of strychnine originates entirely and alone from reflex movements produced by the strychnine, exciting to increased action the primary cause of the reflex motions themselves.

The next question that occurs is, what is the primary cause of these reflex movements? Here, however, we find ourselves in the field of physiological controversy; as far as regards the question first considered, it is a matter of little moment how the controversy may be decided. It may be remarked, however, that tetanus induced by strychnine, cannot be attributed to a general increased excitement of the nervous system. Were this the case, stronger contractions of the muscles dependent on the anterior cord laid bare in Exp. VIII., IX. and X., should have occurred rather before the administration of the poison than after it; but this was not the case. Other experiments, which require to be repeated, however, seem to show that the cause of reflex motion is to be sought for in the gray matter of the spinal cord; that the strychnine acts, therefore, by exciting to activity this gray matter, or rather the ganglionic in masses composed of it. These experiments are the following:—

Exp. XIV. A needle was carefully passed down through the centre of the spinal marrow, of a beheaded frog, as far as the point where the nerves to the anterior extremities are given off, and then withdrawn. Strychnine was then administered. Tetanus occurred in the posterior extremities only.

Exp. XV. After laying open the spinal canal, the gray matter of the posterior half of the cord was destroyed as far as it gave off nerves to the posterior extremities. The movements of the latter were little affected by the operation; but tetanus did not ensue after the exhibition of strychnine.—*Month. Journ. Med. Sci.*, Aug., 1847., from *Zeitschrift für Rationnelle Med.*, Bd. V. ht. 2.

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3. *On the Nerves of the Sheaths of the Roots of Spinal Nerves.*—M. Pappenheim addressed a note to the Academy of Sciences, which was read at their sitting on the 13th of August, respecting the sheaths of the roots of spinal nerves, and the necessity of taking into consideration the existence of their small nerves in drawing conclusions from any experiments on recurrent sensibility. The author stated that he had rendered himself certain of the existence, both in the horse and dog, of small nerves on the sheaths of the anterior roots of the spinal nerves, a matter which had been doubted by some anatomists. From numberless observations on all parts of the human body, he had become persuaded that nerves would be found wherever arteries were met with. "Now, on the anterior roots of a spinal nerve, an artery is found; at its side are nerves, but their number, structure, origin, and situation, are not always the same. I find, too, as does M. Magendie, that the inferior nerves, on the anterior roots of which sensibility has so clearly been observed, have the greatest number of nerve-fibres in their sheaths, whilst the superior roots, of short extent, are so poorly provided with nerves, that sometimes I have failed to find any, but which at present appears a matter of little moment.

The nerves of the sheaths do not wholly belong to the system of vegetable life, (the organic nervous system,) but also, in part, to the cerebro-spinal system. The fact is completely beyond dispute, for I have two or three times succeeded in following nerves clearly arising from the root, and curving upwards, to arrive at the sheath of the motor nerves. Sometimes the nerves, having gained the sheath, proceed upwards; sometimes they descend; sometimes they may be followed to the inside of the dura mater; at other times they remain outside of it. In most cases I have succeeded in finding but one ramification of the nerves; once I have seen a nerve-filament, consisting of nearly eight or ten primitive fibres, mount and divide into two portions, one of which continued its course, whilst the other descended towards the periphery, forming an arch, such as is observed to be the termination of nerves, in numerous cases."—*Prov. Med. and Surg. Journ.*, Nov. 17.

4. *On the Pitch (Timbre) of the Human Voice.*—M. Segond communicated to the French Academy of Sciences a memoir on the modifications of the pitch of the human voice. The following are the conclusions at which he arrived:—

1. The timbre is not, like the tone and intensity, a simple quality of sound, but depends always on several circumstances collectively.

2. In the vocal apparatus the modifications of the pitch result from the general state of the system, and from the action of all the parts of the vocal apparatus; but it is particularly in the vocal tube that the cause of the modifications is to be found.

3. The pharynx, the mouth, and the nasal cavities, by acting more or less apart, or by combining in action, give to a sound very various timbres. If the vocal tube has a large dimension, the sound augments in volume, and becomes grave or dull. The pitch is, on the contrary, so much the clearer or shrill, as the dimensions of the tube are smaller.

4. The clear and the deep timbre have different degrees: their production does not result from a particular form of the tube. The fixity of the larynx, generally given as characteristic of a deep note, may, to an equal degree, belong also to the clear timbre; for if one executes a roulade or shake in a low note, the larynx offers in every respect its usual mobility.

5. The timbre of the improperly called guttural note is produced whenever the glottis vibrates with a very short tube.

6. The vowels, which may be considered as so many timbres, correspond to the form and dimensions of the buccal cavity.

7. When a sound traverses the nasal cavities, it may present three principal varieties. In the first case, the mouth being shut, if the sound is driven through the nasal cavities, the latter give passage to it without being able to arrest or to retain it, and the timbre is but slightly nasal. In the second case, if the sound pursue its course through the mouth, whilst the external orifice of the nasal fossæ is closed, the timbre becomes extremely nasal if the sound be directed into the cavity of the nose, for then it is retained at every part. In the third case, if the sound be directed into the same cavity whilst the mouth and nose are both open, it will at once escape from the two; but the sound will ring in the posterior part of the nasal fossæ. In this last case, the timbre will be less nasal than in the preceding, but much more so than in the first. One sees from this, that we must carefully distinguish the sound which escapes through these cavities, and that which rings in them. It is in this distinction that we find an explanation of all the phenomena of the nasal voice.—*Lancet*, Sept. 11, 1847.

5. *Intermittent Pulse coincident with Health.*—M. Bidard, d'Arras, gives an account of a man, above the middle stature, of the sanguine temperament, and of a strong constitution, and who had never suffered from any illness, except from inflammatory fever when about twelve years old, but the pulsation of whose heart and arteries were very abnormal. In 1826, M. Bidard was called to him on account of a contused wound of the left leg, from a kick of a horse, but which affected him very little. On that occasion, M. Bidard felt his pulse, when he noticed that after every two pulsations there was an interval of repose for nearly the length of one pulsation. There were forty-two pulsations and twenty-one periods of repose in a minute. The same condition was observed also in other arteries besides the radial. Upon listening to the heart's sounds, there were two normal and successive con-

tractions, and then an interval of rest, perfectly isochronous with that remarked in the pulse. On further auscultation and percussion, nothing otherwise abnormal could be detected about the heart and vessels, nothing at all to explain the intermittence. The man stated that this peculiar condition of his pulse was also remarked by the medical man who attended him in his only illness when a boy. From that time up to the period of his decease, lately—*i. e.*, for twenty years—M. Bidard has frequently marked the constancy of this anomalous circulation, as also have many other physicians. Death followed at the age of eighty-four, apparently as a consequence of old age, without any well characterized malady, but with a gradual failing of sight, hearing, and of the vital powers generally, and with the supervention of extreme anorexia.

After death, the lungs were found healthy, with a few pleural adhesions; the pericardium contained but little serum; the ascending and descending aorta, and the venæ cavæ, preserved their integrity; the heart was of a proportionate volume with the other viscera, and without any apparent anatomical lesion; the vessels were normal in their distribution; so also were the nerves.—*Prov. Med. and Surg. Journ.*, from *Gaz. Méd.*, Sept. 4.

[Similar cases are not uncommon. We have seen one case in which the pulse is always intermittent, except under the excitement of febrile action.]

6. *Vulvo-Vaginal Gland.*—M. Huguier has given a description of a gland situated at each side of the junction of the vulva to the vagina. It was discovered by Gaspard Bartholin, and was generally described by older anatomists; but of late its existence has been almost forgotten. According to M. Huguier, this gland is about the size and form of an apricot kernel, and is provided with an excretory duct, about seven or eight lines in length, the external aperture of which is situated in the angle between the vulva and the border of the hymen. This gland is small until puberty, when it is developed with the other organs of generation; it becomes turgid during sexual excitement, and secretes a quantity of clear mucus-looking fluid, which it is said to ejaculate with some force. M. Huguier agrees with former anatomists in regarding this gland as closely analogous to Cowper's gland in the male subject; for it is situated in about the same part of the perineum as this latter is, and presents the same anatomical relations and connections. It is an appendage to the vulvo-vaginal cavity, a part which is analogous to the urethra in the male; it receives the materials for its nutrition, and its sensation from the same vascular and nervous sources as does Cowper's gland; it presents also many varieties in form, size, and situation, and it may be absent on one or both sides, as is often the case with Cowper's gland.—*Monthly Journ. Med. Sci.*, Oct. 1847, from *Archives d'Anatomie.*

7. *Variations in the Quantity of Fat in the Human Lungs.*—M. Natalis Gaillot, having examined the chemical composition of the lungs under various circumstances, especially of disease, finds, among other points, that the pulmonary tissue of the fœtus contains a much larger quantity of fatty matter before than after birth: the amount begins to diminish with the first commencement of respiration. At the end of intra-uterine life, and just before the respiratory functions commence, the quantity of fatty matter in the tissues of dried lung may amount to 10, 12, 15, or 18 parts in 100: but when respiration has commenced, the proportionate quantity rapidly falls, and seldom exceeds 6 per cent. He finds, also, that in all affections of the chest, the consequence of which is a temporary or permanent obstruction to the respiratory functions over a greater or less extent of the pulmonary surface, the proportion of fatty matters increases in those parts which have become impermeable to air. The quantity of fatty matter may, in such cases, amount to 15, 20, 30, 40, or even 50 parts, in 100; while the healthy portions of the same organs usually do not contain more than about 10 per cent. This is observed at all periods of life, from the earlest infancy to extreme old age.—*Lond. Med. Gaz.*, Oct. 1847, from *Comptes Rendus*, July 12th, 1847.

8. *Congenital Deficiency of the Gall-Bladder.*—An example of this malformation is recorded by Mr. E. Canton, Demonstrator of Anatomy, in the *Lancet*, Oct. 16. He met with it in examining the abdomen of a female, aged sixty-five, who had

died in St. Martin's Workhouse, from disease of the brain. Mr. C. noticed that the portions of the intestine usually stained by bile, in its transudation, were untinged by that fluid; and on subsequently raising the liver, found the circumstance accounted for, by an absence of the gall-bladder from its usual situation; a shallow groove for it, however, was present, lined by peritoneum.

Suspecting malposition, Mr. C. searched for this viscus, or its remains, in the neighbourhood, but without success; and on subsequently making thin slices of the liver in its whole extent, was convinced that the case was one of congenital deficiency of the gall-bladder.

The liver was only two-thirds of its natural size, and healthy in structure. Nothing abnormal was seen in the other viscera. The right and left hepatic ducts were of their wonted length and ordinary diameter, uniting together at an obtuse angle just below the transverse fissure, to form a ductus choledochus, which was thus, by inclusion of the common hepatic duct, a longer canal than usual, whose relations were natural, but it was possessed of a calibre nearly twice as large as under ordinary circumstances. The lining membrane of this trunk presented the appearance characteristic of the mucous wall of the gall-bladder. The cystic artery, vein and nerves were wanting.

In the case related, Mr. C. remarks, the ductus choledochus must have formed the reservoir for the bile which is being continually secreted; and the small size of the liver would show, perhaps, that there was no greater amount of this fluid eliminated than the canal would conveniently contain. An interesting point is, a consideration of the mode in which the duct was induced, as it were, or forced, to part with its contents. When the gall-bladder is present, it is ordinarily believed that the abdominal muscles, in their contraction, so press upon it as to evacuate the bile, and that the expulsion is aided by the distension of the stomach and duodenum. In the present instance, of course, such offices were uncalled for, the bile having simply to be discharged from the ducts, which would be accomplished by the presence of chyme, in the duodenum, inciting their muscular coat to peristaltic action, at the same time that the orifice of the canal would be rendered patulous by the coincident movements of the gut.

ORGANIC CHEMISTRY.

9. *On the frequent occurrence of Alkaline Urine in Health, and the Errors of Diagnosis occasioned by a want of knowledge of this fact.* By Dr. Adolph Krukenberg of Brunswick.—The fact—first promulgated by Wöhler—that the internal use of salts of vegetable acids, and fruits containing them, causes the urine to be secreted alkaline, has been too much neglected by succeeding physiologists and pathologists. Our author found that a much smaller quantity of fruit was necessary for the production of this phenomenon than has hitherto been supposed, viz.—2 to 4 oz. of apple pulp, or 18 plums, weighing without the stones scarcely 1½ oz., sufficed to make the urine alkaline and hazy from phosphates; or if clear on excretion, heat caused their deposition; the addition of a little hydrochloric acid caused an effervescence like champagne; too much liquid, a bladder already filled with acid urine, or a disproportionate allowance of flesh, interfered with the success of the experiment. How often are those ill of chronic complaints who use a moderate diet, and with whom fruit is a useful and favourite article, troubled with hazy and alkaline urine, causing anxiety alike to themselves and their physician, which a little physiology does away with. In the simple chronic nephritis of Rayer, the chief symptom is the alkalinity of the urine; in no case was there a sectio-cadaveris; and some of the cases recovered so quickly, as to justify a doubt as to the correctness of the diagnosis; although he inculcates careful dietetic treatment, it is evident from his work that the semiotic influence of fruit in small quantities was unknown to him. This article is not forbidden at La Charité, and friends of the patients often carry them some. In several of his cases the alkalinity of the urine seemed to depend on purulent admixture, and consequent rapid putrefaction; and in one it seemed to be kept up, if not produced, by the use of an alkaline saline water (Contrexeville). The alkalinity of the urine has also been used

by Prout as a diagnostic sign of certain spinal affections. These he divides into two great classes.—1st. Those arising from depressing emotions and weakening influences; and in these he recommends the use of fruit, and fluids containing malic acid, as cider and perry: to these, and not to any disease, our author refers the alkalinity of the urine. 2d. Injuries of the spine; our author states, that neither Rayer nor himself had ever been able to observe the urine alkaline in cases of injuries of the spine, unless there were some existing or consecutive affection of the mucous membrane of the urinary passages, producing purulent admixture, hastening thereby the putrefactive changes in the urine. In the three cases detailed by Prout, two had stricture of the urethra, and the third retraction of the testicle, and a mucous sediment—all bespeaking the existence of some such affection. A microscopical examination, by showing the existence or absence of pus cells in the urine, would have confirmed the diagnosis, or at once corrected it. How far inattention to diet may have led to error, cannot be specified. Prout also mentions, without explanation, what has been already referred to—viz., that although alkaline urine, by copious secretion, be clear and bright, yet boiling causes it to deposit a phosphatic sediment, which falls without any such previous process, if the secretion be more sparing; the phosphates separate before the boiling point, and from their great specific gravity fall rapidly, and may thereby, as well as by their solubility in acids, be distinguished from the albumen found in Bright's disease.—*Month. Journ. Med. Sci.*, Aug., 1847, from *Zeitschrift für Rationnelle Medizin*, Bd. III. ht. 1.

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10. *Oxalic Diathesis.*—The *Provincial Med. and Surg. Journ.* contains a series of articles by Dr. Edward Ballard, illustrative of the condition of the system, which is accompanied by oxalic urine. The morbid states which Dr. B. has seen the oxalic diathesis accompany, are the following:—"Hypochondriasis; delirium tremens; a disposition to this disease or mental derangement from intemperance; mania; melancholia; mercurial tremor; cerebral hemorrhage; hysteria; spermatorrhœa; debility and cachexia connected with a scrofulous constitution; eczema; acne; gastrodynia; acute, gonorrhœal and chronic rheumatism; Bright's disease of the kidney, (shortly before the comatose stage;) cancer of the liver; cancer of the lung; cancer of the uterus and bladder; irritability of the bladder; enlarged prostate; hypertrophy, with valvular disease of the heart; and aneurism of the aorta. Its occurrence with granular kidneys and albuminuria is remarkable for its extreme rarity. In some persons of unhealthy parentage and scrofulous taint, I am disposed to believe, that the secretion of oxalate of lime with the urine may become habitual, since I have noticed it continue in such a person for some months, independently of the presence of any active disease, and unaffected by change of air, modifications of diet, or tonic medicine. So far as my own observations have been carried, the sexes appear to share equally in the diathesis."

In one case, (a girl, aged ten years, labouring under debility, connected with scrofulous constitution,) Dr. B. observed all three forms of oxalate of lime, the octahedral, dumb-bell and circular. The octahedra occur much more frequently than the other two forms. Out of 139 specimens of oxalic urine, examined by Dr. B., this form was present in 136, the dumb-bells 6, the circular 10. Out of 19 individuals, whose cases Dr. B. has analyzed, the octahedra occurred in 18, the dumb-bells 2, and the circular form 6. "In one individual I have seen," says Dr. B., "the circular plates are the only manifestation of the oxalic tendency, during the time he was under observation; but dumb-bells have, in my experience, never presented themselves without being accompanied, preceded, or followed by octahedra. The circular form, again, I have noticed to occur alone in three out of the ten examples of it; and in only one of the remaining seven were dumb-bells conjoined; and, although I am satisfied, from unrecorded observation, that dumb-bells also may occur without octahedra, yet, in the six specimens, alluded to above, they were accompanied by them. These two remarkable forms appear to be not very distantly allied. The specific gravity of the greatest number of specimens I have examined, ranged between 1014 and 1031, the average between these numbers being 1022. Out of 127 specimens, 14 were below specific gravity 1014, and 8 only above 1031. I have also remarked, with other observers, that when oxalate of lime was in progress of being discharged, a diminution of it commonly took place whenever the specific gravity was remarkably lowered. One word more upon this head: the circular form appears connected with a specific gravity rather lower than the average. In the three instances, where it occurred alone, the specific gravity was 1011, 1015, and 1019; when with octahedra, 1010, 1016, 1020, 1021, 1022, 1023; but when with dumb-bells also, 1026. I have met with dumb-bells in urine as low as specific gravity, 1012, and as high as 1035. It has been stated that the appearance of uric acid not uncommonly precedes the disappearance of the oxalates. It occurred in seven out of the nineteen individuals mentioned, but in none could I perceive any relation of the kind. The sudden discharge of a large quantity of lithate of ammonia, however, has appeared occasionally to influence, in a temporary manner, the subsequent amount of oxalates."

11. *Composition of the Blood in New-Born Animals.*—M. Poggiale, from some experiments made by him, has arrived at the following conclusions, respecting the composition of the blood in new-born-animals, a subject on which there is much diversity of opinion among chemists:—

1. The proportion of water in the blood is rather high, whilst that of fixed matters is very considerable.
2. The blood of new-born animals is very rich in globules, and poor in fibrine.
3. The quantity of albumen, and of fatty matter, seems to be about the same as that found in the adult.
4. The oxide of iron is more abundant in the blood of the newly-born.

Of all the animals, whose blood he submitted to examination, that of young dogs alone presented a considerable proportion of globules. Among them, the mean proportion was 162.30. Among other young animals, he found less fixed matters and globules than in the adult state; however, the number indicating the proportion of globules is always relatively higher; that of fibrine is very low.—*Lancet*, Sept. 11, 1847.

12. *On the Condition of the Urine in a Case of Urticaria.* By Dr. Douglas Maclagan.—The gentleman whose case was submitted to the Society was a patient of Dr. Scott, and had long been the subject of severe attacks of urticaria, occurring almost daily, and after every meal, attacking particularly the face and upper part of the body, and by the disfigurement which they occasioned, as well as by the cutaneous irritation, proving a very distressing and annoying complaint. From inquiries made by his medical attendant, his attention was called to the state of his urine, respecting which he had not previously made any particular observations. When his attention was directed to this subject, he found that, though not in any way unnatural in quantity, it had a very pale colour, and considering it to be defective in some respect, he sent it to Dr. Scott for examination. Dr. Scott found it to be of remarkably low density, averaging only about 1010. Naturally suspecting that this might be connected with diseased kidneys, Dr. S. tested it for albumen, but not a trace of this substance could be detected in it. Under these circumstances, Dr. Scott submitted it to Dr. M. for more rigid examination, on the 26th December last.

The urine sent was the morning urine, which should always be used for examination where the whole urine of 24 hours cannot be obtained. The quantity sent was about 10 oz. It was of a very pale straw colour, quite transparent, and let fall no deposit on standing. Its reaction with litmus was feebly but distinctly acid. Its density 1009.039. It was analyzed by the process employed by M. Becquerel, in his *Semeiotique des Urines*, by which the amount of water, urea, uric acid, inorganic salts, are determined. The results obtained from the urine in the present instance were the following:—

Urea,	6·91
Uric acid,	0·05
Inorganic salts,	12·03
Other organic matters and water,	981·01
	1000·00

Albumen was carefully tested for by all the re-agents applicable to this end, and Dr. Scott's observation, that no trace of this substance was detectable, was fully confirmed.

The peculiarities of this urine will best be appreciated by contrasting it with the proportion given by Becquerel as the mean of the urine of healthy males. According to him, that is,

Urea, ...	13·838
Uric acid, ...	0·391
Inorganic salts, . . .	7·695
Other organic matters and water, .	978·076
	1000·000

It appeared, then, from this analysis, that the chief peculiarity in the present case was a deficiency in the ordinary characteristic ingredients of the urine, the urea, and uric acid. This could not arise from mere excess of water; first, because the urine was not excessive in quantity; second, because the inorganic salts were above the normal standard, whereas, had the water merely been in excess, they, too, ought to have indicated a diluted condition of the urine. Dr. M. ventured, therefore, to propose, as the pathological view of the case, that the defect here was merely a deficiency of the urea and uric acid; in short, a want of what modern chemists call the products of transformation of the tissues, and that the retention in this way in the system, of matters which ought to be eliminated from it, might be the cause of this cutaneous irritation, especially occurring, as it did, after meals.

The question now was, how was this to be remedied. It occurred to Dr. Maclagan that as it was known that colchicum had the property of increasing, in a remarkable degree, the amount of urea in the urine* of persons using it, this drug might have some effect in bringing the urine of this patient to a more healthy condition.

In conformity with this suggestion, Dr. Scott placed his patient on the use of the tincture of the seeds of colchicum, and, on the 13th January, when the colchicum had been in use for about a fortnight, another sample of the urine was procured, and analyzed, as before. The following were the results:—

Its density was 1029·9.

Urea, ...	20·36
Uric acid, ...	0·50
Inorganic salts, . . .	12·72
Other organic matters and water, .	966·42
	1000·00

Here, then, it will be seen that the expected physiological action of the colchicum was manifested in a marked degree. The urea was tripled in its amount, and raised above the normal standard. The increase of uric acid was in a tenfold ratio, whilst the water and the other organic constituents suffered, of course, a corresponding diminution, the inorganic salts remaining nearly as before.

The result of the case was more decidedly favourable than was anticipated. The tendency to the urticaria diminished, and at last entirely went off under the use of the colchicum, and the patient has kept free of his complaint since that time.

The above case was not adduced with the view to establish a pathological theory of urticaria. No single case will serve as a basis on which to found this. It was, however, laid before the Society, in order that attention may be directed towards the state of the urine in cases of a similar nature, and because it appears to be of some interest to observe a therapeutical result obtained from a consideration of the physiological action of a drug.

Allusion was made to the fact, that Dr. Elliotson, and others, had obtained good results from the use of colchicum in these diseases—*Proceedings of Med. Chirurg. Soc. Edinburgh*, in *Monthly Journ. Med. Sci.*, Aug. 1846.

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* Dr. Christison's Observations on this point. Published by Dr. Robert Lewins, in his paper on Colchicum.—*Edin. Med. and Surg. Journal*, No. 148.

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13. *Nature of the Fæcal Evacuations in Cholera.* By M. Andral.—Among the alterations found in the solids and fluids of the body in patients affected with cholera, there is one which belongs especially to this disease, and which is characteristic of it: namely, the existence within the intestinal canal of a peculiar white fluid, very similar to water in which rice has been boiled. This material, which is sometimes found in large quantities in the intestines of persons who have died of cholera, and which constitutes the alvine evacuations during life, consists of a muddy liquid, capable of being rendered transparent by filtration, and within which are suspended, in greater or less abundance, lumps of opaque white matter, perfectly untinged by bile. Concerning the nature of this peculiar fluid, it has been considered to consist of the serum and fibrine of blood escaped from its vessels, and poured into the intestinal canal. The liquid portion of this material has been regarded as the serum of the blood; the solid grumous portion, as the fibrine. According to this view an explanation is afforded of the peculiar characters presented by the blood in cholera. And it is considered by many, that the blood, thus deprived of much of its serum, and of its globules, can no longer traverse with readiness the different capillary net-works of the body, and that thus many of the peculiar symptoms presented by this disease may be explained. The facts, however, on which such an opinion was founded, not having been sufficiently proved, M. Andral was induced, by the occurrence of several cases of cholera, in the hospitals of Paris, in 1846, to submit to careful examination the matters passed from the intestines. After having filtered this intestinal matter, and thus separated it into two portions, the one, liquid, perfectly transparent and colourless; the other, solid, consisting of a number of particles agglomerated together, he treated the liquid portion with alcohol, nitric acid, and heat; but by none of these reagents was a precipitate formed; consequently there was no albumen. The results of an examination of this liquid portion by M. Favre also showed that the organic substance contained in it, possessed none of the characters of albumen. This proves, therefore, that the serum of the blood does not enter into the composition of the materials ejected from the intestines in cholera. Like the serum, indeed, this fluid was highly alkaline; but this is a character common also to many other fluids of the economy. The contents of the intestines also are usually alkaline, and the alkalinity is not more marked in cholera than in many other diseases.

Moreover, if the intestinal secretion in cholera is essentially composed of albumen, the quantity of this material in the blood ought to be found considerably diminished, as it is in certain affections of the kidney attended with the transmission of albumen through these organs. The diminution, indeed, in cholera ought to be much greater than in such renal affections, because the quantity of secretion poured from the intestines is very large. But M. Andral, having examined the blood in all stages of cholera, finds that the proportion of albumen is almost unaltered, neither manifest increase nor diminution being found. He has obtained equally decisive proof also of the non-existence of fibrine in the intestinal secretions in this disease. No trace of a filamentous texture could be detected by the microscope in the solid masses evacuated. These solid masses he finds to be composed of numerous nucleated and nucleolated cells, closely resembling pus-globules. Besides these globules, which were very abundant, the masses contained also numerous particles of epithelium. It would appear, therefore, from the results of his examinations, that the white matter discharged from the intestines, in cholera, consists essentially of a mucous secretion in enormous quantity, and so far altered in quality as to contain an abundance of corpuscles in all respects similar to pus-globules, and to which the white appearance of the secretion is due.—*Lond. Med. Gaz.*, Oct. 1847, from *Comptes Rendus*, 9th Aug., 1847.

[Dr. J. Hughes Bennett very justly remarks, in commenting on these investigations of M. Andral—"We doubt very much the propriety of attaching the idea of fibrine only to that condition of the liquor sanguinis when it coagalates into filaments. This, in the adult, takes place, for the most part, only on serous, and is exceedingly rare on mucous membranes. In the latter situation, it is rapidly transformed into pus, and should the observation of M. Andral be confirmed, we must accept it as an evidence of intense inflammation of the intestines in these cases.—*Month. Journ. Med. Sci.*, Dec., 1847.]

14. *Analysis of the Blood of Five Patients affected with Scurvy.* (*Archives Générales*, July, 1847.)—MM. Becquerel and Rodier, in a note presented to the Academy of Sciences, on the 21st of June last, give the following analysis of the blood of five patients, labouring under Scorbutus, under the care of M. Fauvel, at la Salpétrière.

Case I.—Female, aged 76. Severe case; first bleeding, the clot much buffed; second bleeding, fifteen days later, clot dense, resisting, dark-red, and spotted white striæ. Density when defibrinized, 1050.6. Density of serum, 1025.5.

Analysis of 1000 parts of Blood.	
Globules	109.
Fibrin	4.1
Organic matters of serum	69.2
Inorganic matters of serum	6.8
Water	810.9
	1000.

Analysis of 1000 parts of Serum.	
Organic matters	77.7
Inorganic matters	7.8
Water	914.5
	1000.

Case II.—Female, aged 74. Severe case; blood firmly coagulated. Density of defibrinized blood, 1048.6.

Analysis of 1000 parts of Blood.	
Globules	110.8
Fibrin	3.6
Organic matters of serum	65.7
Inorganic matters of serum	6.2
Water	813.7
	1000.

Analysis of 1000 parts of Serum.	
Organic matters	73.8
Inorganic matters	7.
Water	919.2
	1000.

Case III.—Female, aged 73. Slight case; clot dark and loose. Density of defibrinized blood, 1051.7. Density of serum, 1025.2

Analysis of 1000 parts of Blood.	
Globules	116.5
Fibrin	3.
Organic matters of serum	67.3
Inorganic matters of serum	5.5
Water	807.7
	1000.

Analysis of 1000 parts of Serum.	
Organic matters	76.2
Inorganic matters	6.2
Water	916.6
	1000.

Case IV.—Female, 69; mild. Density of defibrinized blood, 1047.2. Density of serum, 1023.8.

Analysis of 1000 parts of Blood.	
Globules	116.
Fibrin	2.6
Organic matters of serum	63.1
Inorganic matters of serum	7.3
Water	811.
	1000.

Analysis of 1000 parts of Serum.	
Organic matters	71.3
Inorganic matters	8.2
Water	920.5
	1000.

Case V.—Female, 72 years. Severe case; epistaxis. Density of defibrinized blood, 1038.3. Density of serum, 1020.8.

Analysis of 1000 parts of Blood.

Globules	79.4
Fibrin	2.2
Organic matters of serum	56.2
Inorganic matters of serum	7.8
Water	854.4
	1000.

Analysis of 1000 parts of Serum.

Organic matters	61.5
Inorganic matters	8.5
Water	930.
	1000.

From the study of the chemical and physical properties of the blood in these five cases, it appears—

1. That far from presenting that state of dissolution which has generally been admitted, the blood, in scurvy, coagulates firmly, and the serum is uncoloured by globules.

2. That the density of the defibrinized blood was in all the cases below the normal standard, (1057.)

3. That the density of the serum is notably diminished, (1027.)

4. That the globules were in all cases below the mean, (127.)

5. That the fibrin was in no case diminished, but in some sensibly increased.

6. That there was a notable diminution of organic matters of the serum, of which albumen constitutes the principal part, whilst there was a considerable proportion of water.

7. That in no case was there an augmentation of the saline matters, or of alkaline substances.

[The above memoir concludes with some observations on the complete subversion which the predominant theories of scurvy have received by these researches. It was thought the fibrin was diminished, and hence the profuse hemorrhages, &c. It is proved by these analyses, as was previously ascertained by Mr. Busk, that it is, on the contrary, in excess. The theory of the alkalinity of the blood is equally opposed by the above facts, as is also another favourite theory of M. Andral, that when the albumen is diminished to a certain point, dropsy is the necessary consequence, for it was found that though the number of albumen was low, anarsarca only appeared in one case, and that to a very trifling amount.]

MATERIA MEDICA AND PHARMACY.

15. *On Alkaline Medicines.* By M. Mialhe.—M. Trousseau has recently (see number of this Journal for July, 1846, p. 220), recalled attention to the fact that, when these are taken in too great a quantity, they increase the fluidity of the blood and deprive it of colour, and lead to cachexia, pallor, and general infiltration, passive hemorrhage, and an irreparable wasting—giving rise to far greater and more irremediable evils than the disease they are employed to combat, and causing just as much mischief as the abuse of iodine, mercury, or the preparations of iron. I propose here to indicate some of the circumstances under which alkalies may give rise to these ill consequences, and those of a contrary character, under which, perseveringly used, they may re-establish the deranged equilibrium of the economy.

First, we may observe that the administration of alkalies in excess does not give rise to so much mischief as does a similar abuse of acids. In the state of health the three principal fluids of the body, the chyle, the lymph, and the blood, are alkaline, and the amount of alkaline base they contain is incomparably greater than the amount of acids contained in other fluids. It is then in an alkaline medium that the animal organic mutations are operated, while in plants it is always in a neuter or acid medium that the phenomena of nutrition take place. The alkalies fulfil a far more important function in the economy than that of mere exciters and fluidifiers, presiding as they do over the decomposition and assimilation of hydro-carbonaceous substances of the amylaceous or cellular families.

But however the blood and other liquids may be physiologically a little more or a little less alkaline, it does not follow that they may be inconsiderately administered. They stand at the head of the agents which exert on the serum the most marked fluidifying action. All the alkalies affect our economy in an identical manner. They produce on the organ of taste an impression *sui generis*, designated as *alkaline* or *urinary*. M. Chevreul showed this to be always due to the same substance, ammonia, which is set free by the decomposing effect exerted by the alkaline base on the hydrochlorate of ammonia contained in the buccal fluids. Experience has shown that, the same chemical fact prevails in respect to the bicarbonates and carbonates, and all the other fluids of the living body. Hence, wherever we introduce any alkaline substance into the economy, a certain quantity of ammonia is set free. This explains why the ingestion of a certain quantity of bi-carb. soda dissipates the symptoms of drunkenness—the ammonia disengaged restores to the albuminous elements of the blood that fluidity which the coagulating action of alcohol had partially deprived them of.

Under what circumstances is the employment of alkalies efficacious or dangerous? Clinical observation shows us that the daily taking of a drachm or a drachm and a half of bicarbonate of soda, or its equivalent of any other alkali, so far from being generally injurious, is frequently advantageous. Many persons can take far larger doses with impunity, while much smaller ones have, in some cases, induced serious accidents. All substances which produce an acid predominance in the blood allow of a large quantity of alkalies being taken. Thus, the inactive inhabitants of towns, in whom there is hardly any acid secretion from the skin, especially in winter, will bear large doses of alkalies. It is the same with those who live upon an almost exclusively meat diet, inasmuch as the albuminized elements containing sulphur and phosphorus, these two elements produce, by their interstitial combustion, phosphoric and sulphuric acids in marked proportions. This explains why the urine of the carnivora is normally acid, that of the herbivora always alkaline. On the other hand, whatever favours the predominance of alkalies in the vital humours forbids their employment. Thus the laborious inhabitants of the country, in consequence of their abundant acid sweats, can ill bear the ingestion of alkalies. So with persons who adopt an exclusively vegetable regimen, the blood is normally rich in carbonate of potass, by means of the transformation which the salts of potass in combination with the organic acids have undergone. Lastly, there are certain pathological conditions which lead us to vary the amount of alkalies given. Who does not know that in gout, gravel, and especially diabetes, immense quantities of these may be given? and who is not aware that certain summer and autumn putrid affections will not tolerate them?

Clinical observation has long shown that the various alkalies may replace each other in practice. This is the case with carbonate of lime and of magnesia: as also with the compounds of soda and potass. It has been erroneously stated that soda is more favourable to the animal constitution than potass. Analysis of the animal liquids shows that the potass compounds are equally prevalent with the soda, and as regards the herbivora, far more so. But, although we can in general, by the aid of any alkaline preparation, induce an identical medical result, we believe it is better to give the preference (as mere antacids) to those alkaline compounds which present the advantage of having always an uniform chemical composition, and of producing little or no therapeutical effect; and in these respects the hydrated calcined magnesia and the bicarbonate of soda seem to hold the first rank.—*Med. Chirurg. Rev.*, Oct. 1847, from *L'Union Médicale*, Nos. 1 and 4.

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16. *On Alum Gargles.* By M. Mialhe.—We have shown elsewhere that the true *astringents* belong to the class of *coagulants*, that is to say, the class of chemical agents capable of entering into chemical combinations with the albuminous elements of the blood, and forming with them an insoluble compound. In applying this principle to *alum*, we showed how this substance, penetrating into our tissues, is first decomposed by the alkalies of the blood, so as to form an insoluble sub-salt, which is deposited in the organic tissues, filling their network, and, so to speak, tanning them. We pointed out how a new portion of alum, being no longer modified by the alkalies already saturated, then acts by fluidifying the albumen, in stimulating exhalation; and how, lastly, this *alum-albuminous fluid*, taken into the circulation, again becomes solid when it finds itself in presence of

all the alkalies contained in the mass of the blood—and in this way we explained the agency of large doses of alum in arresting hemorrhage. Thus, in a small quantity, it is a very precious local astringent; in a larger quantity it becomes an energetic local fluidifier; and, after absorption, a general hemostatic of undoubted efficacy.

We omitted to state why we thought this substance should not be combined with *mel rosæ*, which it so commonly is. It always contains a marked quantity of the proto-sulphate of iron by reaction, on which the tannin of the mel rosæ produces a greenish precipitate. This, besides being disagreeable in appearance, leads the patient to the belief that the properties of the medicine have become deteriorated. Preferable combinations are the following:—

1st. *Astringent Gargarism.*

Alum	. . . . .	½ a part.
Distilled water	. . . .	150 parts.
Syrup of mulberries ——— Poppies	of each . .	25 parts.

For aphthous affections, mercurial stomatitis, and generally in all the diseases of the throat in which astringents are indicated.

2d. *Detersive Gargarism.*

Alum	. . . . .	20 parts.
Distilled water	. . . .	100 parts.
Syrup of mulberries ——— Poppies	of each . .	30 parts.

In hoarseness, in aphonia, and in those affections of the pharynx characterized by great dryness, and in which it is desired to excite the excretion of the mucosities. It is in this same dose—that is, its fluidifying dose—that alum should be given for the prevention and cure of pharyngeal diphtheritis.

Most practitioners, I may remark, administer alum in too small a proportion for the removal of acute hoarseness, and especially in the aphonia of singers. Theory and practice alike show us that these cases require strong gargles.—*Ibid.*, No. 34.

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17. *Astringent Collyria.* By M. Mialhe.—Many practitioners are in the habit of prescribing *mucilages* of gum, psyllium, and especially of quince, with the different medicinal agents which constitute the base of their astringent collyria. It is a bad practice, since all true astringents necessarily belong to the class of bodies which coagulate the serum of the blood, and all substances which coagulate albumen also coagulate gum and the liquids which contain it; whence it results that the addition of mucilage to a salt of alum, zinc, copper, lead silver, &c., necessarily gives rise to more or less of an entirely insoluble precipitate, which can in nowise advantageously act upon the mucous membrane of the eye. Such a combination is worthy of the period which gave rise to it. It belongs to that epoch in therapeutics in which practitioners were persuaded that all agents capable of modifying the living economy were endowed with absolute curative properties, having nothing in common with the action they exercised on our organs, an action which they considered as generally hurtful, and never useful. A fundamental error which time and experience have happily done justice to!—*Ibid.*, No. 40.

MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICE OF MEDICINE.

18. *On the Phosphate of Ammonia, and its value in the Treatment of Gout and Rheumatism.*—This is the title of a paper, read by Dr. Samuel Edwards, to the Bath and Bristol Branch of the Provincial Medical Association, and published in the *Provincial Medical and Surgical Journal*, Nov. 17th, 1847. The author states that some years since he "was informed by an American friend," that he had seen phos-

phate of ammonia prescribed occasionally in gout and rheumatism, with unquestionably good results, and he therefore determined to put this medicine to the test of experience, which he has now done to a considerable extent, and with decided success. "*Since* employing the remedy," Dr. Edwards states, he finds "that Dr. Buckler, of Baltimore, has also employed this salt in these diseases, and with great success." This is doing our correspondent, Dr. T. H. Buckler, very scanty justice, for to him is undoubtedly due the credit of introducing this article into use, as a remedy for gout and rheumatism, and from his paper, published in this Journal, (Jan. 1846,) Dr. Edwards' American friend undoubtedly obtained the information he communicated.

Dr. Edwards states, that he has "now used this remedy, with great success, in almost every variety of gout and rheumatism. In acute articular rheumatism I have not exhibited it during its more inflammatory stage; but after this has been subdued somewhat by the usual antiphlogistic treatment, it very speedily relieves the pains, and in the majority of cases prevents fresh joints from being attacked. I cannot speak positively from sufficient data at present, but I am inclined to believe that the chronic form which is not unfrequently left behind from the acute, may often be obviated. I feel convinced I have prevented, by administering this salt prior to the coming on of the inflammatory symptoms, several times, attacks of gout and rheumatism, and this in individuals disposed to their invasion. In *chronic articular rheumatism*, I have used it after the bowels have been well cleansed by calomel or other purgatives, or if the constitution is vigorous, the vascular action strong, and heat high, after venesection, and I have got rid of these attacks much sooner than formerly. In muscular rheumatism, whether of the acute or chronic form, I have employed this remedy with greater success than in any other. After the action of the intestinal canal was somewhat regulated, I have generally been able, without further preface, to administer it in lumbago, pleurodynia, ischio-gluteal rheumatism, epicranial, (cephalodinia,) cervical, (auchenodynia,) and facial rheumatism. In these I have seen it of peculiar service, and in one case of rheumatic ophthalmia, after the inflammatory symptoms had been reduced, and the patient was annoyed with the pains about the eye and brow, in which I administered it, it was attended with alleviation and subsidence of the pains within sixteen hours of being commenced. I am not prepared to assert that this salt will prove of benefit in those cases of chronic rheumatism, where the disease has already affected the cellular tissue, bone, or cartilage, and occasioned such appearances of morbid anatomy as have been described by Hasse. It may relieve, but I cannot believe it possibly curative.

"With respect to gout, my opportunities of applying this remedy have been less numerous than in rheumatism, yet numerous enough to enable me to speak with certainty of its great value as a remedy; when given in the doses I have mentioned, it produces but little sensible operation beyond that most important of all, the gradual (in two or three cases I have seen it act almost instantaneously), diminution of the distressing symptoms. With this view I have always prefaced its use by well cleansing out the bowels with proper aperients, and then ordering the phosphate every eight hours in simple water, or occasionally in conjunction with a bitter infusion and spirits of nitre, the best infusion perhaps being that of the serpentaria, as it determines to the skin. Attention both before and during the administration of the phosphate to the due performance of the various functions connected with the primary assimilating processes, is of great moment. A slight alterative aperient of mercurial pill and compound rhubarb pill, given every other night, twice or thrice, has answered well. I have seldom meddled with the inflamed part beyond ordering perfect rest, and exciting perspiration by means of fleecy hosiery or flannel, covered over with oil-silk, occasionally a light anodyne poultice or narcotic fomentation, and of course a consistent diet, and abstinence from everything irritating both of body and mind, were points duly remembered. In the third case in which I employed the salt, it was strikingly beneficial. A poor man, a dispensary patient, a very gouty subject, had had an attack for two or three weeks, being confined wholly to his bed or arm-chair. He had tried, and I had previously used, most of the most renowned remedies, with little or no relief. On a Wednesday afrernoon he commenced taking the phosphate of ammonia, (ten grains every eight hours,) and on the Friday morning following he attended me at the dispensary, walking each way, and informed me he had lost all pain, and that the swelling and stiffness were rapidly subsiding. To use his own words, 'the second dose of this last mixture had acted like a charm.' On the Tuesday following he began his work again as a mason. I ordered his continuance for a short time of the salt, combining it with a bitter infusion, and the regular use of a mild aperient.

"This latter point of continuing the remedy a short time, I consider a matter of importance, paying at the same time particular attention to the condition of the digestive organs. With regard to the value of this salt as a solvent upon the gouty concretions when formed, my experience does not enable me to speak with any certainty, but my observations lead me to state in a positive manner its powers to arrest the increase, and I believe the formation of them. So great is the solvent action of the phosphate of ammonia, after being introduced into the system, upon uric acid, that I am almost inclined to think calculous disease of that nature may be very greatly benefited by its employment. It is worthy of consideration when we remember the frequent occurrence of uric acid calculi, and the fact that most others of different character have uric acid for their nucleus. In lithic acid gravel I have frequently used it, and experience has taught me that it causes a very rapid decrease and disappearance of the red crystalline sediment; it quickly reaches the urine, (as I have testified oftentimes upon my own person,) when largely diluted. Mr. Alexander Ure (*Med. Chir. Trans.*, vol. xxiv.) has recommended the benzoic acid for the same purpose. I have used it many times, but never with so marked a result as with the phosphate of ammonia. Dr. Garrod has stated, and his statement has been confirmed by Dr. Booth and Mr. Boyé, of Philadelphia, that uric acid is unaffected by the conversion of benzoic acid into hippuric acid, the urea alone being diminished."

These statements are entirely confirmatory of Dr. Buckler's experience, as detailed in his paper in this Journal.

19. *Croup cured by Cauterizing the Larynx with a Solution of the Nitrate of Silver.*—Dr. Latour was sent for to a child of four years old, ill of sore throat, accompanied with a hoarse cough, fever, anxiety, and other severe symptoms, the uvula and right tonsil being covered with very adherent false membranes. Nitrate of silver in the solid form was immediately applied to all the afflicted parts within reach, and a vomit was given, by which some fragments of false membrane were brought away. Next day the false membrane had not covered the left tonsil, but appeared to have extended downwards, and the larynx seemed to be involved in the disease, as there was a suppressed hissing cough, and a loss of voice. Objecting as insufficient to the usual method of applying the nitrate of silver in such cases, namely, by introducing into the back part of the throat a sponge dipped in the solution of the salt, Dr. L. determined to use a stronger solution, between seven and eight grains to the ounce (fifty centigrammes to thirty grammes of water), and to adopt a method of applying it which he had already published in the "Clinique des Hôpitaux des Enfants." This consists in saturating a strong ball of lint in the solution, and conveying it to the opening of the larynx by means of a long curved pair of forceps, and then squeezing out the solution by compressing the ball between the blades. In this manner the solution was applied in the case referred to every eight hours for four days with complete success; the voice was first restored, and then the convalescence soon became complete.—*Monthly Journ. Med. Sci.*, Oct. 1847, from *Gazette Médicale de Paris*, 21st August, 1847.

20. *On the Morbid Anatomy and Pathology of the Typhus Fever which has been prevalent in Edinburgh during the session* 1846–7. By Dr. Hughes Bennett.—Until the commencement of the present session, cases of intestinal lesion in typhus fever have been exceedingly rare. During the three years the author had acted as pathologist to the Royal Infirmary previous to the present session, and during which he had examined upwards of 500 individuals who had died of the disease, he had only met with it three times. Since November, however, they had become more frequent, and the author had studied the morbid anatomy of typhus in reference to the opinions set forth by Rokitanski, Engel, Hammernick, Gunsburgh, and other pathologists of the Vienna and Prague schools of Medicine. According to these observers, typhus fever is accompanied by a peculiar dyscrasia of the

blood, and the intestinal and other lesions produced, contain a peculiar deposit called typhous deposit, which bears the same relation to the constitution of the blood as tubercle and cancer do to the tubercular and cancerous cachexiæ.

The cases of fever admitted into the Royal Infirmary from the 1st of November, 1846, to the 30th of June, 1847, amounted to 2071. Of these 278 died. Owing to the imperfect arrangements which exist in the Royal Infirmary, however, regarding post-mortem examinations, only 63 of these cases had been inspected after death. It was upon these data that the following statements were founded.

The organ most frequently affected was the spleen. In the majority of cases it was more or less enlarged and softened, presenting a mahogany-brown colour and creamy consistence; so that when pressed, nearly the whole of its parenchyma could be squeezed out of its capsule. In ten cases the spleen contained one or more infiltrated masses of typhous deposit, of a yellowish or brownish-yellow colour. In two cases the deposit had softened and burst into the peritoneum, causing fatal peritonitis.

The organs most frequently affected after the spleen were the lungs. The most common lesion was bronchitis, the bronchial lining membrane being of a deep mahogany or purple colour, more or less infiltrated with serum or exudation. The fine bronchial tubes were frequently filled with a muco-purulent matter, more or less fluid, and in a few cases choked up with a reddish-brown creamy substance, probably a modified form of the exudation (typhous deposit) described by Remak. The apices of the lungs were very commonly œdematous, yielding on section a copious, grayish, frothy fluid. In fifteen cases the lungs were more or less consolidated by exudation, which seldom presented the characters of normal hepatization. It was sometimes of a dirty-yellow tint, at others of a brownish-chocolate colour, existing in masses of irregular outline, and of variable size, resembling the typhous deposit previously spoken of, occasionally found in the spleen. In three cases there was pulmonary apoplexy.

The intestines presented the lesion so well described by Bretonneau, Louis, Cruveilhier, and others (dothinenteritis, typhoid ulcer, &c. &c.), in 19 cases. The peculiar elevation, sloughing, and ulceration of the round and oval patches had been carefully observed, and the anatomical description given by Mr. Goodsir (*Monthly Journal*, p. 353, 1842) for the most part confirmed. The elevated patches had been observed occasionally to extend as high as the duodenum, and as low as the rectum. In one case numerous dothinenteric elevations, about the size and shape of a split plea, extended all over the ascending and transverse colon. In a few cases the isolated follicles, in the large intestines, were observed swollen and empty, presenting in their centre a dark-blue or black spot. In others, the round and oval patches of the small intestine were hypertrophied, elevated above the mucous membrane, and of a grayish or slate colour. Perforation of the intestine, causing fatal peritonitis, had occurred in three cases. Dysentery, with flakes of lymph attached to the mucous membrane, over the ascending and transverse colon, was associated with intense dothinenteritis in one case. Oval and round cicatrices, exhibiting different stages of the healing process of the intestinal typhous ulcer, were observed in two cases.

In all the cases where the intestinal ulcerations were recent, the mesenteric glands were enlarged, soft, friable, and of a grayish or reddish-purple colour. Some of these glands reached the size of a hen's egg. On section they presented a finely granular surface of a dirty yellow-grayish, or dark fawn colour, produced by infiltration of the typhous deposit, which was generally soft and friable, but sometimes in one or more parts of the swollen gland broken down with a fluid of creamy consistence.

In two cases there were glossitis and laryngitis, with tonsilitis; in one case abscess in the kidney, and in one an abscess in the posterior mediastinum.

The brain did not appear to participate much in the disease. It presented only occasional congestion, with slight effusion into the sub-arachnoid cavity, or into the lateral ventricles.

The blood in the great majority of cases was fluid, and of a dirty-brownish colour. In those instances, however, where the disease had been protracted, and especially in such as presented well marked typhous deposit, firm coagula were found in the heart and large vessels.

In seven cases no lesion whatever could be discovered.

The typhous deposit consists of a yellowish or flesh-coloured exudation, sometimes passing into a brownish colour, from the admixture of more or less blood. When first formed it is of tolerably firm consistence, as in the spleen and glands of the mesentery and intestines, but rapidly undergoes the process of softening. In parenchymatous organs it may be slowly absorbed or resolved, as in the lungs, spleen, and mesenteric glands, or it may produce ulceration or gangrene. In either case, should the individual recover, cicatrices with puckerings in the tissue are produced, the parenchyma around the deposit having contracted and become indurated. On mucous membranes the deposit is thrown off in the form of slough, and discharged by the excretory passages, leaving a characteristic round or oval-shaped ulcer. This process may be followed by cicatrization or perforation of the gut by ulceration. In the former case it leaves a round or oval-shaped depression in the mucous membrane, often of a blue colour, which subsequently becomes covered with epithelium: in the latter case it produces death by peritonitis.

The minute structure of the typhous deposit varies in different situations. In the lungs, spleen, and intestinal canal, it contains at an early stage a number of roundish or irregularly shaped corpuscles. They are about the $\frac{1}{100}$ of a millimetre in diameter, contain several granules, with a nucleus about the $\frac{1}{500}$ of a millimetre in diameter. Acetic acid renders them more transparent. They are conjoined with numerous granules and molecules, which become more abundant as the process of softening advances. In the mesenteric glands a higher degree of cell formation takes place. Cells are formed about the $\frac{1}{50}$ of a millimetre in diameter, containing from two to six, and sometimes even more nuclei, which become very distinct with thick edges on the addition of acetic acid, whilst the cell wall is partially dissolved. The same cells may occasionally be seen in the elevated typhous deposits of the intestinal glands. Sometimes the only appearance observable in the deposit, is that of numerous molecules, and granules mixed with blood corpuscles.

Dr. Bennett considered that the pathology of this affection consisted in a primary alteration of the blood, caused by the peculiar miasm or poison causing typhus fever; that, under such circumstances, local inflammations were set up in particular organs, and that the exudation attending it, instead of presenting the usual appearances, and undergoing the usual trsnsformations, became modified so as to constitute the typhous deposits.

Dr. Christison noticed, some time ago (Art. Fever, *Lib. of Medicine*), that the Edinburgh fever was especially characterized by pulmonary complications. We know that in France and Germany, intestinal lesions are most common. During the present session, however, the latter had also become frequent in Edinburgh, and it was a fact worthy of observation, that this change occurred at a time when scurvy, and bad diet prevailed, circumstances often known to be associated with this form of fever in France and Germany.*

Numerous preparations were shown to the Society, exhibiting typhous deposits in different organs.—*Proceedings of Med. Chirurg. Soc. of Edinburgh*, in *Monthly Journ. Med. Sci.*, Oct. 1847.

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21. *On a New and Successful mode of Treating Fever.*—This is the title of a paper read by Dr. William Gill, before the Provincial Medical and Surgical Association, and published in the *Prov. Med. and Surg. Journ.* for 22d September last. The form of fever to which Dr. G. has applied the mode of treatment to be described, is that which has been so prevalent the past year in Great Britain. The plan of treatment is as follows:—

"On a flock bed I have placed from three to five blankets, superimposed over these a sheet wrung out of cold water, on which the patient, stripped, is placed, with legs outstretched, and arms to the side; the sheet is then drawn tightly around up to the neck, and inclosing the feet; first, one blanket, then another, and so on to the whole number, are tightly drawn over the sheet, so as to have the *whole body well and closely packed.* In this state the patient lies from a quarter of an hour to one or two hours, according to the object in view, and the effect produced. Some get tired at the end of half an hour, some can continue for one or two hours, and feel very comfortable. As soon as a gentle perspiration commences, a wine-glass full of water is given frequently. At the commencement of this treatment, in a case of fever, I have generally ordered its use for one hour; after that time the wet things are removed, and the sick person is placed in bed, well wrapped in three blankets, and allowed to perspire for three hours; afterwards, the blankets are to be carefully removed, one at a time, so as to allow the perspiration to subside gradually, and the patient is then placed in bed between the sheets.

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* The Edinburgh fever epidemic of 1846-7, has found an excellent historian in Dr. Bennett's pathological assistant, Dr. Waters, whose Thesis on this subject was crowned with a gold medal at the graduation of the present year. We trust that the essay will shortly be published.—Ed.

"During the whole of this period, small quantities of water should be given. In the summer, during this process, a free ventilation may be allowed in the chamber; in winter, it is necessary to have a good fire, and to have one blanket well warmed to apply around the body, so soon as removed from the wet sheet.

"Several cases of incipient fever have lost all traces of disease after the first application. If the fever is not reduced, the next day the same plan must be repeated, keeping the patient in the wetted sheet from half an hour to one hour, according to the intensity of the symptoms, and in the blankets from one to two hours. This may be repeated every day till indications of *a cool* skin arise; then it must be immediately discontinued.

"During some period of this treatment, the temperature of the atmosphere being very high, (75° to 78° in shade,) I have not found it advisable to keep the patient as long as two hours sweating in the blankets; from half an hour to one hour was sufficient. A longer period caused the pulse to be accelerated, instead of lowered, which latter is the usual effect of the treatment. In very hot weather, when a free perspiration has been induced at the commencement of the fever, I have adopted the following plan:—To wrap the sick person for half an hour in the wet sheet, covered lightly with one blanket; to be then washed all over with a towel wetted with tepid water, then rubbed dry, and placed in bed between the sheets. I have not found it necessary to make use of this treatment more than five times to the same individual; generally after the third or fourth application the skin becomes cooler, and the other signs of fever gradually subside. When the skin becomes cool, and the tongue less dry, I have instantly discontinued all water remedies, and given bark, wine, and broths, and it was surprising how soon convalescence and strength become established. During the whole course of the fever, milk and water, or weak broths, were allowed *ad libitum.* In one person, twice, in the course of the same day, owing to the intensity of the fever, it was found necessary to repeat the wet sheet, using it the second time for only half the period of the first; a comfortable night ensued.

"Without doubt this is a most effective mode of *quickly* reducing the temperature of the body; an equilibrium is soon established between the cold of the water and the heat of the body, and the patient becomes bathed in a natural vapour bath, as may be felt by placing the hand under the bed-clothes. Where the fever runs high, and the delirium is violent, the wet sheet may be safely applied for short periods, (two minutes,) several times in the course of the day. This will be found a more effectual mode of reducing the cerebral excitement, than any other means with which we are acquainted. This refrigerating plan, used for ten minutes, during an evening exacerbation, will often produce a few hours refreshing sleep.

"I must confess that I had great doubts as to the *safety* of this treatment, where the mucous membranes of the bronchi and gastro-alimentary passages were complicated. Very soon my fears on this head were dissipated by the convincing evidence of experience; in fact, *these* proved the cases in which the decided benefit of the treatment was most marked. The quick and embarrassed respiration, dry cough, and sonorous râles, subsided quickly after one or two applications of the wet sheet; the cough became looser, the râles moister, and expectoration was established.

"The same happy change also occurred where the gastro-alimentary membranes were disordered. Generally the first wet sheet puts a stop to the diarrhœa, and soon afterwards pain and swelling disappeared. A confined state of the bowels was frequently the effect of the wet sheet, and it was found necessary in several of the patients to resort to small doses of castor oil. In three or four cases the symptoms of gastric and abdominal irritation or inflammation were so violent, as to have justified the employment of leeches, calomel, and opium; and indeed we know that depletion by leeches is the usual treatment followed in the Parisian hospitals, and yet by the simple means mentioned, in three days every bad symptom had vanished. A great saving is made to the patient's strength when we can dispense with the abstraction of blood."

Dr. G. has treated twenty-five cases by this method, but says, very justly, "that a more extended experience is required, before its merits can be fully determined."

From the facts he has observed, Dr. Gill draws the following conclusions.

"1. That the judicious use of the wet sheet has a powerful influence in relieving many of the most distressing symptoms of fever.

"2. That if applied *very early* in the disease, it may in some cases arrest its further progress.

"3. That if used *later* in the disease it has a controlling influence, bringing the fever to a termination much earlier than by any other known treatment.

"4. That the ordinary *complications* of fever are no arguments against, but rather for, its use.

"5. That with this treatment, weak broths and milk and water, *ad libitum*, may be allowed.

"6. That the first symptoms of the subsidence of the fever, were a cool and often moist condition of the skin, a diminution of thirst, and an improvement in the tongue. When these changes occur, the treatment must directly be discontinued, and bark and better diet be ordered.

"7. That some of the worst cases of typhus fever were convalescent, and walking about on the fifteenth day from the commencement of the attack."

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22. *Contributions to the Pathological Anatomy of the Intestinal Mucous Membrane in the Infant at the Breast.* By Friedleben and Flesch, of Frankfort.—Hitherto softening of the mucous membrane of the stomach and enlargement of the mesenteric glands have been usually regarded as the only causes of the acute or chronic diarrhœa, with atrophy, to which so great a mortality is due within the first year of life. This view our authors think they can disprove by exact post-mortem investigations. Softening of the mucous membrane of the stomach they regard as exceedingly rare, having met with it only in two instances, in one of which it proved fatal within twenty-four hours, while, in the other, there existed a fatal complication of intestinal disease. Diminished consistence at the fundus of the stomach was more frequently observed, but its origin was at all times secondary. They found enlargement of the mesenteric glands also to be uniformly secondary, of limited extent, and rarely of distinct character, except in the glands on the root of the mesentery. The enlargement of these glands could not have been felt through the abdominal walls, and hence it seems certain that hardened feculent masses had been mistaken by many for enlarged glands. Our authors indeed affirm, that even in the dissecting-room, after opening the abdominal cavity, the mesenteric glands cannot be felt enlarged until the intestines have been removed.

Before entering on the pathological appearances, our authors give a sketch of the normal appearances of the parts concerned in infants at the breast. The colour of the mucous layer, as well as of the subjacent mucous membrane itself, is either grayish-white or yellow, from the colouring principle of the bile, or more or less of a darkish livid colour, from imbibition of blood. It is to be remarked, however, that in this last case the mucous membrane is free from any arborization or punctation. The mucous membrane adheres very closely to the subjacent tissue, so that, after being cut through, it can be detached only to a small extent. The mucous membrane of the colon, however, is less firmly adherent, owing probably to the greater amount of subjacent cellular tissue—its consistence is always great enough to prevent it from being rubbed off by the finger or with the back of a knife—where the adhesion appears lessened without simultaneous diminution of its consistence, large pieces of the mucous membrane may be separated from the subjacent cellular tissue. The solitary glands, neither of the small intestines nor of the colon, are visible to the naked eye. As to those of the colon, however, we discover occasionally delicate roundish spots, presenting a contrast to the rest of the membrane by their opaque colour, but without any elevation. The villous layer, and the glands of Lieberkuhn, are also invisible. The Peyerian patches, on the contrary, may be discovered at the earliest period of life, when the intestine is held up to the light, owing to their greater opacity as compared with the rest of the membrane. Whenever these patches are recognized at first sight, a pathological state may be suspected. The largest of the patches are seated near the iliocolic valve, where they may be discovered with a slight examination—the smallest are in the jejunum—those of the ileum are always distinguished by their marked limits. The number of the patches varies as much as from sixteen to thirty-six. The cases in which they are found to be only from four to six, are regarded by our authors as referable to atrophy of the mucous membrane.

In regard to the pathological states of the parts, we must restrict ourselves to the principal characters laid down by our authors.

I. Congestion.—1. *Of the mucous membrane itself.* A full red colour, varying from the rose to the cherry red, and excluding the violet and livid tints, is to be seen in little isolated spots, in patches of 1″ 2″, or even in arborizing trunks. Bifurcations of this colouring extend even over the normal patches. At the same time the adhesion of the membrane is not diminished—its consistence is. This congestive condition was seen alone, and also complicated with inflammation of the mucous membrane and its glands. 2. *Congestion of Peyer's glands.* Some of them are more readily visible than in the healthy condition, partly by their circumscribed redness, partly by the anormal development of their areolar structure, the septa becoming more prominent; at the same time the solitary glands, both of the small intestine and of the colon, are also more developed, and more easily recognizable, without, however, projecting above the level of the mucous membrane. This derangement is without doubt one of the most frequent causes of temporary diarrhœa, occurring, in particular, at the time of teething.

II. Acute Inflammation of Peyer's Glands.—1. *Primitive form.* About ten or twelve of these patches, as well elsewhere as near the ileo-colic valve, exhibit at first sight a saturated cherry-red colour throughout, and a considerable elevation above the mucous membrane. The redness is sometimes limited to isolated spots, while, in other cases, it affects the border or the whole surface of the patches. Their consistence appears also to be lessened. Those of the lower parts of the canal are for the most part less affected, the progress of the alteration being from above downwards. The mesenteric glands at the same time appear elevated in most cases, and somewhat injected, but of normal consistence. Our authors in such cases found the mucous membrane itself and the solitary glands either quite healthy, or, if morbidly affected, certainly not in connection with the alteration of the Peyerian patches. This morbid change was observed also by Rilliet and Barthez, but only in exanthematic fevers, and hence of secondary character, and somewhat analogous to the pathological states of typhoid fever. Our authors, on the contrary, found it in a primitive form, quite independent of any other disease, without any alliance to typhoid fever, but rather of true croupous character.—2. *Secondary form.* Deep redness of Peyer's patches, with elevation, and in some spots even ulceration. At the same time, ulcerative inflammation of the solitary follicles of the small intestine.

III. Chronic Inflammation of Peyer's Patches.—Several patches show a decided gray-blue, or rather a slate-gray colour, strongly contrasting with that of the mucous membrane, the colour of which is usually pale, and in rare instances, owing to chronic inflammation, livid-gray. The areolar structure of the patches is not unfrequently rather opaque, their borders, however, being distinct, and studded with black punctations. According to the stage at which death takes place, the tissue appears atrophied or elevated. In some cases, traces of inflammation of the mucous membrane and solitary glands were also observed; the mesenteric glands, on the contrary, were never essentially altered. Complicated tuberculization was never seen, but great tendency to complications in other organs, to lobular pneumonia, purulent effusion in the brain, &c., the cause of the fatal event. On this affection is founded Barrier's account of his "Diacrise Folliculeuse."

IV. Ulceration of the Solitary Glands.—1. *Primary Ulceration.* A greater or less extent of the ileum presents roundish ulcerations of a size varying from that of a millet seed to that of a lentil, corresponding to the solitary glands; the borders are firm, prominent, and sharply defined; the base considerably excavated, and filled with a yellow exudation. These occur isolated, near one another, or even confluent. Tuberculous deposit was found neither on the ulcerative surface nor elsewhere. The solitary glands of the colon, Peyer's, and the mesenteric glands, in the cases observed by our authors, were normal, or but accidentally diseased. 2. *Secondary Ulceration.* The difference between this and the primary form lies merely in the more intensely inflamed halo around the ulcerated glands. At the same time Peyer's glands seem to be constantly diseased, and both affections to be attended with tubercular deposits.

V. Softening of the Intestinal Mucous Membrane.—1. *Red Softening.*—There is here lessened consistence of the mucous membrane, more frequently in that of the small intestine, less frequently in that of the colon. The adhesion of the mucous membrane to the subjacent tissue is at the same time diminished, this defect of adhesion occurring at points where the consistence is still unchanged. Along with these appearances the mucous membrane sometimes exhibited a species of œdematous infiltration, or a homogeneous pulpy and readily lacerable mass. The simultaneous alterations of the solitary glands, Peyer's patches, and the mesenteric glands, are of subordinate importance. 2. *White Softening.* This differs from the former only by the paleness of the membrane, and the greater extent of the affection, owing to its longer duration. The patches of Peyer are, in such cases, most readily visible, not in consequence of any change on themselves, but merely of the unusual paleness of the rest of the membrane. On the whole, this form of disease appears to be merely the termination of an inflammatory state of the mucous membrane, or the gradual change of the red softening into the white—in favour of which view there are analogies in the case of other organs, witness the brain—and this is the side of the question taken by Rilliet and Barthez.

It is surprising that alterations so frequent and of such importance should have been till now so imperfectly understood. The French authorities have thrown them together, under the name of Entero-Colitis. But it is one of the most beneficial results of the investigation with which we have been engaged, that, with the exception of secondary acute inflammation of Peyer's glands, and secondary ulceration of the solitary glands, all the intestinal alterations in infants at the breast appear in most cases as idiopathic, and altogether independent diseases, without any simultaneous alteration of the other component parts of the mucous membrane. It is also very deserving of attention, that some of the alterations frequent in more advanced childhood, were never met with during the first year after birth—for example, membranous or aphthous formations, and independent ulcerations of the mucous membrane.

Conclusions.—1. Morbid alterations of the intestinal mucous membrane are a very frequent, probably the most frequent, *post-mortem* appearance in the infant at the breast. 2. When of a chronic character, these alterations lay the foundation of atrophy; when acute, their most prominent effect is exhausting diarrhœa, which, from the cerebral symptoms often attendant on it, was mistaken by many observers for softening of the stomach (gastromalacia). 3. The frequency of the alterations above described, is as remarkable as the rarity of those which were once believed to be of common occurrence; for example, enlargement of the mesenteric glands, aphthous formations, gastromalacia, &c. 4. It is also to be remarked, that the diseases of the intestinal tract are in general far more frequent than those of the stomach, which, with the exception of softening of the fundus, are proportionally rare at this period of life. 5. The ulcerations of the mucous membrane, unless when secondary, are in most cases isolated. 6. The most frequent of the alterations under examination, is chronic inflammation of the Peyerian patches; and this is the only anatomical base of atrophy. 7. Next to this, but far more rarely, the red and white softening are essential causes of atrophy. 8. Red and white softening are but different stages of the same morbid process; the simple and gelatinous softening give but a difference of form. 9. In atrophy of infants at the breast, chronic ulceration of the solitary glands of the small intestines is among the rare occurrences. 10. The acute inflammation of the Peyerian patches, though hitherto little attended to, is among the most fatal of morbid alterations. 11. This is a true inflammation, as is attested by the attendant affections: for example, croupous lobular pneumonia. 12. This affection is generally unknown; and the few who are acquainted with it, commonly refer it to Dothinenteritis—a disease which does not occur in infants at the breast. 13. Secondary acute inflammation of Peyer's glands, as well as inflammation of the solitary glands, belongs to tuberculization; in all such cases, tubercles of the spleen were met with simultaneously, but never in the intestinal tract. 14. The colonitis of the French observers was often met with, but uniformly of small extent, and of subordinate importance, compared with the simultaneous, but far more serious, alterations of the mucous membrane of the small intestines. The mesenteric glands, with the exception of slight redness and elevation, in a few cases were, for the most part, normal; the alteration of these was never either considerable or prominent; in general tuberculization, it is true, they were infiltrated with tuberculous matter; but even then their enlargement could not be felt through the abdominal walls. 16. The peculiarity and frequency of the above described morbid alterations, and the absence of others, known to occur in the next year of life, as typhoid fever and abdominal tubercles, present features of great interest in the pathology of the alimentary canal during the first year of life.—*Month. Journ. Med. Science*, Sept. 1847, from *Zeitschrift f. Rationelle Medizin*, Bd. V. h. 3.

23. *On a new form of Serous Inflammation.* By Hughes Bennett, M. D.—In many cases which had come under Dr. Bennett's notice of apparent inflammation in the serous membranes, nothing whatever could be discovered after death but a slight effusion of serum. The membrane itself presented its usual white glistening appearance, free from all vascularity or deposition of lymph. The effusion in consequence had been considered non-inflammatory, and the connection between the symptoms and morbid appearances had been involved in the greatest mystery. An examination of such effusions with the microscope, however, had proved that in many such cases they contained pus cells in considerable quantity, and it seemed possible that such purulent formation was intimately connected with the symptoms which preceded death. In illustration of this observation, Dr. Bennett described three cases out of several he had met with.

The first case was one of fever under the care of Dr. Andrew, which appeared to be going on well, when one day, during the visit, the patient was seized with a distinct rigor, and pyrexia for two subsequent days, and died during the following night. On examination no lesion whatever could be anywhere discovered, with the exception of about one ounce of serous fluid of a golden yellow colour, and very slightly turbid in the peritoneum at its most depending part. The membrane itself was perfectly healthy. A microscopic examination of the fluid showed it to contain numerous pus corpuscles.

The second case was that of a woman who entered the infirmary under Dr. Douglas, with occasional convulsions, which had come on two days previously. She presented such marked symptoms of head affection as led to a suspicion of meningitis. She died in three days. On examination the membranes and substance of the brain were found quite healthy. Both lateral ventricles, however, contained each about ʒj of an opalescent fluid, on examining which microscopically, numerous compound granular corpuscles were observed in it.

The third case occurred to himself. It was that of a man who, for some time, had laboured under bronchitis. The day previous to his death, he was seized with pain in the cardiac region, tumultuous action of the heart, but without any murmur which could be detected by auscultation. He died during the night, and there was found, on dissection, considerable emphysema of the lungs with bronchitis. The pericardium presented a perfectly healthy appearance, but contained about half an ounce of an amber-coloured fluid, slightly turbid. A microscopic examination of this fluid exhibited numerous pus corpuscles in it, as in the first case.

Several other instances had occurred to Dr. Bennett, where inflammatory products could, in like manner, be detected in the effusions of serous cavities, which had been considered by practitioners of little importance, although, in his opinion, capable of explaining many anomalous symptoms.

Dr. Bennett also alluded to the importance of minutely examining the fluids in contact with mucous membranes. He had, on several occasions, detected pus globules in the urine, when nothing was visible in that fluid to the naked eye, and when it seemed perfectly healthy after a most careful chemical examination. In one such case in which Dr. Christison was consulted, and in which the urine was examined with great care, the symptoms of chronic pyelitis under which the individual laboured were inexplicable, until the microscope detected the pus globules. On the other hand, he had seen several cases, where fluids having, to the naked eye, all the appearance of pus, had been found in the bladder, ureters, or pelvis of the kidney, and yet not one pus corpuscle could be discovered, but only an immense number of epithelial cells, which had been thrown off in large quantities, and communicated to the urine a turbid, purulent-looking character. This had been well seen in two kidneys he had recently examined with Dr. Maclagan.—*Proceedings of Med. Chirurg. Soc. of Edinburgh*, June 13, in *Monthly Journ. Med. Sci.*, Aug. 1847.

24. *Atrophy of one Lung, with Cicatrized Tubercular Cavities.* By M. Payan, of Aix.—A woman, twenty-six years of age, went into the Hotel Dieu, at Aix, on account of a slight illness. She had been in the same hospital, three years before, with all the symptoms of confirmed tubercular phthisis,—namely, hollow and deep cough; abundant expectoration, at times tubercular; hectic fever, with circumscribed redness of the cheeks, &c. After remaining three months in the hospital, she returned home with no other prospect than of quickly sinking under the disease. Nevertheless the symptoms, after a time began to subside, and at length, she so far recovered her health and strength that she again went to service, having then no remains of her former complaints, but some constraint in breathing when she made an unusual exertion. When she went into the hospital a second time for a complaint of the stomach, there was no symptom of affection of the lungs. A few days after she was seized with influenza, which then (January 1837) prevailed severely in the town. Before the evening of the day on which she was attacked, the respiration had become much oppressed, with sense of approaching suffocation; and, in spite of every means of relief that could be devised, she died in the night with all the indications of asphyxia.

At the post-mortem examination, the body presented an ordinary degree of embonpoint. The left side of the chest was perceptibly less prominent than the right. There was nothing unusual within the skull. Between the right and left lungs there was a remarkable disproportion—the right being well developed, and filling its proper cavity; while the left, reduced to a very small bulk, was lost in the left thoracic cavity, being concealed by much laminated tissue. On minute examination the left lung was found to be much atrophied, and quite impervious to air. Its texture was hard and fibrous-like, somewhat resembling that of the supra-renal capsules. On cutting into it there was found a number of cavities, more or less extensive, appearing to communicate with each other. These were true tubercular cavities, smooth on their inner surface, and altogether empty. The right lung was simply in a state of congestion.—*Monthly Journ. Med. Sci.*, Nov. 1847.

25. *Observations on Hysteria.* By M. E. Marchand, of Sainte-Foy.—The following are the conclusions to which M. Marchand comes, in a memoir on Hysteria, read before the Royal Academy of Medicine at Paris:—

That aglobulia denotes a diminution in the blood globules, as hyperglobulia signifies an increase of the same, or plethora. Aglobulia is a very common morbid state. The blood globules—the medium proportion of which is 125 in a thousand parts of blood—may fall to so low a figure as 24, as Andral has remarked. M. Marchand has found it as low as 43. Aglobulia has for its discriminating mark a disturbance of the nervous system. This disturbance of the nervous system is, in general, the more decided the more complete the aglobulia is. The disorders arising from aglobulia, may affect either the nervous system of the functions of relation, or the nervous system of the vegetative functions. Under the first head fall convulsions, paralyses, hysteric lethargies, hysteric aphonia, hysteric asthma; disorders of the organs of sense, as amaurosis and double vision, and tinnitus aurium. Under the second head come various chlorotic phenomena, nervous palpitations of the heart and great vessels, venous and arterial murmurs, failure of the complexion, certain disorders of the uterine function. In general, the diseases termed nervous, depend on aglobulia, or at least always coincide with it. Aglobulia is more frequent in women than men. The majority of women have a slight degree of aglobulia, which explains their nervous susceptibility, their exalted sensibility, and their many neuralgias. Sydenham affirmed that two-thirds of the female world suffer from hysteric symptoms. Women have a smaller proportion of blood globules than men; they are more subject to nervous maladies. This smaller proportion of the blood globules in them, may be ascribed to their periodical hemorrhage; for all hemorrhage diminishes the blood globules. The menstruation, then, has the effect of producing in females their pecular nervous susceptibility.

The nervous symptoms of the first months of pregnancy depend on the diminution of the blood globules. It has been observed, that nervous diseases have a tendency to subside after the critical age. It is equally an observed fact, that after this period of life the blood globules acquire an increased proportion, owing to the cessation of menstruation. In general, women bear blood-letting and spare diet ill, because these means favour the diminution of the blood globules, and exalt the nervous tendency. It has been said, with truth, that chlorosis is the basis of pathology in the female constitution. Hysteria is the aglobulia of females from twenty-five to fifty-five years of age; chlorosis is the aglobulia of young girls, and often of young men; hypochondriasis is the aglobulia of grown men. Proceeding on a different train of ideas, Sydenham conceived there is no difference between hysteria and hypochondriasis. A great number of chronic maladies,—but, in particular, syphilis, tubercle, cancer, and intermittent fevers,—gives rise to aglobulia, which is then symptomatic. Spare diet too long persevered in, too frequent venesections, produce aglobulia, and consequently nervous excitability. This happened very often at the time when gastralgias were mistaken for forms of gastritis; the means adopted as methods of cure prolonged the disease.

Antispasmodics sometimes calm nervous excitement, but never cure it. To produce a radical and complete cure, the blood globules must be brought back to their normal state; and the only mode of accomplishing this end is by animal diet, wine, iron, bitters, exercise in the open air, in the sunshine, residence in the country, sea-bathing, &c. When aglobulia is symptomatic, the same means tend to produce a cure. In the third stage of syphilis, and in old intermittents, it is found beneficial to unite animal diet, wine, iron, and bitters, with the antisyphilitic and febrifuge remedies. If the alteration of tissue be incurable (tubercle and cancer), iron may relieve, but cannot cure.

An increase in the proportion of the blood globules (140, 150, 170 per millimetre), or hyperglobulia, impairs the nervous sensibility, and leads to apathy. Those affected with hyperglobulia have diseases in general peculiar to themselves,—gout, gravel, cerebral hemorrhages. Venesection, spare diet, vegetable nourishment, alkaline waters, &c., are the best means of curing hyperglobulia.

To conclude, the functional derangements of the vascular system, and the functional derangements of the nervous system, arise in inverse proportion.—*Monthly Journ. Med. Sci.*, Nov. 1847, from *Gaz. des Hôpitaux.*

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26. *Scrofula.*—(*Prov. Med. and Surg. Journ.*, April 7.)—"Scrofula," says Dr. Addison, of Malvern, "is a term used to designate a particular state or condition of the living body, rendered apparent by the phenomena of its nutrition and diseases. The term, whatever may have been its origin, seems, like many others in medical science, to have been handed down with reference to the human structure, for convenience sake, rather than for any other reason. Writers upon the subject of scrofula, for the most part, reiterate one after another, certain external appearances in the general contour of the person; in the eyes, lips, nose, countenance, or complexion, by which, they say, those individuals who are scrofulous, may be distinguished from others who are not so. But we shall hereafter show, that no satisfactory practical distinctions can be safely made upon such grounds, the constitutional disposition not declaring itself until the qualities of the textures, and their capacity of withstanding injurious influences, have been tested and declared by some irritating or disturbing cause, giving rise to an unusual local increase of

nutritive matter; when the form of the morphology or metamorphosis—the conformable or unconformable type of the changes—pronounces the constitutional diathesis.

"If there be one fact better established than others, in respect of scrofula and scrofulous diseases, it is their hereditary character, the offspring exhibiting bodily and mental powers, and forms of disease similar and analogous to those which have been known to exist previously in one or both parents. This transmission of structural or constitutional and other qualities, from parent to child, is one of those remarkable facts in living bodies, which we look to the recent rapid advances of physiological science to elucidate. To say that children inherit the dispositions and diseases of their parents, and to rest content with the barren assertion, is to leave to conjecture questions of the highest interest to medical and moral science. If the lineaments of the face, the colour of the eyes and hair, the tones of the voice, an ear for music, and mental aptitude, be handed down from father to son, they must be so by a wonderful consentaneous harmony of organization—an almost incredible conformability in the morphology of nutrition; and if the physiology—if the constitution, temperament and mind, be so similar, then, however little we may be able to explain the fact, it follows almost necessarily, that the pathology and diseases will prove so too;—not scrofulous diseases exclusively, but all others also.

"'The most certain evidence of the existence of a scrofulous disease,' observes a recent medical writer, 'is afforded by the production of a soft brittle unorganized matter, resembling curd or new cheese, which is found mixed with the contents of abscesses, or deposited in rounded masses of different degress of firmness, and varying in bulk from the size of a millet seed to that of a hen's egg; sometimes it is enclosed in cysts, and occasionally it is diffused, as if by infiltration, through the natural texture of the part. To the rounded masses of this substance, the name of tubercle has been assigned, and the substance itself has been named tuberculous matter.'"

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27. *Seat and Nature of Tubercles in the Lungs.* By William Addison, of Malvern.—Tubercular consumption and phthisis are terms used to designate that species of disease which consists in the filling up of the air-cells of the lungs,* and the destruction of their vascular walls by a soft, brittle, white matter, named tubercle or tuberculous matter. The best and most recent pathologists have differed in their statements and opinions regarding the seat and nature of tubercles in the lungs, nor are they agreed as to the changes they undergo. Laennec describes them as small firm bodies, which gradually enlarge, then soften, and by degrees become converted into a liquid mass. Andral differs somewhat from Laennec; he says, that tubercles soften, not from any spontaneous changes in themselves, but from an admixture of purulent matter poured out from the living texture immediately surrounding them. Dr. Carswell states, that tubercles originate from morbid changes in the blood, and that their most frequent seat, is the surface of the mucous membranes; this author believing, in common with many others, that the membrane of the air-cells of the lungs is a mucous membrane. Dr. C. J. B. Williams states, that "lymph, pus, and tubercle, pass by imperceptible gradations into each other;" and in this opinion I concur, in so far as that pus may pass into tubercle or mucus, or into a mixture of tuberculous and mucous matter, but the converse never can occur.

Tubercles exist in the lungs more frequently than is generally imagined. Of the numerous apparently-healthy lungs which I have examined in the course of my researches, I have found them in about one-third. In their early state they escape notice, unless searched for with a lens in very thin sections, gently extended upon a dark back-ground. In order to make out correctly the primary situation of a tubercle, the examination should be made in the lungs of young persons, who have died of other diseases; for in those who die of consumption, so many changes have taken place, and the several textures of the lungs have been so altered, that it is impossible to find tubercles in that early condition in which alone their situation, in or upon the membrane of the air-cells, can be determined.

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* Dr. Cumin in *Cyclopædia of Practical Medicine*, vol. iii. p. 701. Art. Scrofula.

I have repeatedly examined with the microscope the material deposited in the air-cells of the lungs in *pneumonia*, and compared its characters and appearance with that forming a tubercle, without being able to detect any more essential or constant difference between them, than exists between recently excreted and old pus. The same class of objects—incoherent colourless cells, molecules, and granular matter, appears to constitute the material in both cases—in hepatization or consolidation of the lung from inflammation, and in consolidation from tuberculous matter; and in both cases also, the material takes primarily the shape of the air-cells in which it is seated. In the material forming the consolidation resulting from inflammation, incoherent cellular forms predominate, as they do in recent pus; whereas in tuberculous matter, granular masses and molecules greatly predominate, as is also the case in old pus. And were we to imagine the fluid element of old pus, removed or absorbed, the remaining solid matter would be, in my opinion, tuberculous matter; the colourless elements of blood, pus, and tubercle passing by imperceptible gradations into each other.*

In pneumonia, the consolidating material is, as it were, suddenly thrown out over a wide extent of lung. All the blood-vessels are loaded with colourless elements. The blood itself, when withdrawn, assumes a buffy coat, and the texture, from the various blendings of the red colour of the blood, with the white colour of the new material separated from it, assumes various hues between dark red and whitish yellow.

In phthisis, on the other hand, the consolidating material is deposited at distant points, in a much slower manner; it becomes, as it were, old, before it becomes visible, and I have seen sections of the lung display an appearance precisely analogous, and indeed very similar to that of the face in small pox, and this in a patient who did not die of consumption.

My researches have been in like manner extended to the characters and appearances presented under the microscope by the material taken from pimples, boils, and all kinds of eruptions on the skin, and in all these instances, incoherent colourless cells, granular matter, and molecules, have been found in the greatest abundance. Moreover—and it is a fact of much importance—the same objects have been profusely detected, not only in the fixed textures surrounding the morbid matter, but likewise in blood taken from the vessels, administering to their nutrition. And it would appear, that when any texture becomes involved in a hurtful or destructive inflammation, or in a tuberculous or scrofulous disease, that its physiological type is altered, and its function impaired; the structural elements, whatever may be their normal qualities or characters, become more and more uniform, and at length corpuscular, the corpuscles being apparently identical with those circulating in the blood.

It has been said, that tubercles arise from "an error of nutrition," which is perfectly true, but no practical advantage is derived from the use of a few words which are applicable alike to all diseases.—*Prov. Med. and Surg. Journ.*, April 7th, 1847.

28. *Abscesses of the Liver opening into the Bronchi.*—M. Raiken, in a memoir read before the Belgian Royal Academy of Medicine, has collected accounts of eight cases of abscesses of the liver opening into the bronchi, some of which occurred under his own observation. He regards these abscesses, as eventually curable by the powers of nature, when they can discharge themselves through a fistulous canal, commencing at the suppurating part, and passing on till it reaches and opens into one or more of the bronchial ramifications. On the other hand, it appears from eleven observations, based on pathological examination, that in cases where death has followed the opening of hepatic abscesses in the lungs, the suppurating cavity has not directly communicated with any one bronchus by an intermediate fistulous canal; but, on the contrary, its contents have made their way mediately to the bronchi—*i. e.*, through the intervening tissues, depositing

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* By the term *old pus*, the reader will understand that I mean *matter* which has been a long time excreted, and in which the corpuscles or cells having broken down, there remains a thick, more or less fluid material, composed of granular forms and molecules.

here and there in the lungs, the pleura, and other parts, some portion of themselves, in the form of masses, or of infiltration.

The reddish, thick, fœtid, purulent matter, compared to the washings of meat, often found in chronic abscesses of the liver, is very probably the result of decomposition of the pus, or of the pultaceous softening of the surrounding hepatic tissue; and although death does not inevitably follow, such matter shows great danger, on account of the suppurating cavity in the liver not being circumscribed throughout by an adventitious cellulo-vascular membrane, adapted for and favouring cicatrization.

Pus, actual bilious matter, liquefied and decomposed detritus of the hepatic tissue, biliary calculi, acephalocysts, or laminæ of vesicular bodies, coming from an abscess or cyst opening into hollow organs, lined with mucous membrane, as the bronchi—all these various products may, by the aid of an adventitious fistular canal, find their way into such organs, pass through them, and be rejected externally, without there following any functional disorders or material alterations incompatible with life or necessarily fatal.

The presence of bile in the pus of chronic abscesses of the liver must not always be looked upon as a certain proof that these abscesses are without an enclosing cellular wall, since it is not uncommon to meet with bile in encysted bodies, both in hydatid cysts, and in abscesses truly surrounded by an investing tunic.

The pus of chronic hepatic abscesses generally possesses an ammoniacal odour, but is sometimes inodorous.

In forming a diagnosis of chronic abscesses of the liver, the general history of the patient must be considered, and the absence of any disease about the lung or pleura noted. This being determined, we may have recourse to those signs more immediately pointing to disease and abscess of the organ. The slight suffering, which has hitherto attended the disease, when the abscess begins to point and seek an exit for its contents, increases in intensity; there is an acute, stabbing, burning, and heavy pain on the right side, corresponding to the seat of the abscess, and sometimes a fluctuation may be felt. Then, on the abscess bursting in the lungs, there is suddenly excessive dyspnœa, threatening suffocation, orthopnœa, inexpressible anxiety, loud and incessant tracheal and bronchitic rattlings, fœtid breath, an excrementitial taste in the mouth, sudden expectoration of puriform, acrid, and fœtid matter, brown, or reddish, or streaked with blood, sometimes mixed with bile, containing broken-down debris of hepatic substance, of biliary calculi, of hydatids, or of laminæ of acephalocysts. Whilst these phenomena present themselves, an unusual dulness is observed on one side of the thorax, generally the right, with the absence of the respiratory murmur, but without tubular breathing, or resonance of voice, or ægophony, or metallic tinkling, or any sound on succussion, or any enlargement of the side. If the ear be applied over the region of the liver, an evident gurgling is heard, extending to the base of the lung, whilst compression over this region immediately produces a copious expectoration; and lastly, the signs indicating a collection of fluid matter in the liver gradually decrease in number and intensity.

In cases where the symptoms of the discharge of matter from the lungs do not abate, the patient gradually succumbs, worn out by a sort of consumption. When, on the contrary, a gradual and progressive amelioration manifests itself—when, about the base of the lung, where the dulness existed, a mucous râle begins to be heard, followed up by the gradual appearance of the respiratory murmur, and the metallic tinkling or gurgling over the region of the abscess ceases to be appreciable —when compression over the hypochondrium is no longer painful, exciting no further dyspnœa, or expectoration of puriform matters—lastly, when all the disorders of the organism which attend hepatic abscess continue to decline day by day,—we need not despair of recovery. When a cure takes place in cases of hepatic abscesses, or hydatids, discharging themselves through the lungs, we must, in general, suppose the sac of the abscess to collapse, and adhesions to occur between its walls, so that only a cicatrix is left behind. But in order for such a happy result to occur, the walls of the sac ought to be but recent and thin, for when they become old, thick, and even cartilaginous in consistence, the power to collapse is lost. The question then arises, can a cure be effected when the sac is thus dense and wanting in collapsibility? We can suppose it may, if its interior do not go on secreting pus, its walls becoming healthy, and if the sinus leading from it externally become obliterated. Then it would exist but as a serous cyst, like those sometimes met with in the brain, but not perceptibly interfering with the functions of the liver. And may not the cavity of the sac become gradually filled, in some cases, by solid areolar tissue, produced after the manner of granulations from its walls?—*Lancet*, Sept. 18.

An interesting case of abscess of the liver, opening into the lungs, which terminated fatally, is recorded in the *Lancet* (July 17th, 1847) by Dr. A. T. Thomson, with some judicious clinical remarks.

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29. *Thymic Asthma.*—Dr. Herard has made this disease the subject of an inaugural thesis. He observed numerous cases of it in the Children's Hospital, at Paris, and considers it to be the result of spasm of the glottis, or of the diaphragm, and conceives there are three forms of it, according as one or the other, or both these organs are the seat of convulsion. When the spasmodic attack is limited to the glottis, the respiration, he says, is simply arrested for a few seconds, and is restored without the production of the special cry produced by inspiration during convulsion of the diaphragm. In the second form, in which the diaphragm *alone* enters into spasmodic action, the attack is marked only by several successive and sonorous inspirations; the symptoms of asphyxia are not by any means so well marked as in the first variety which we have described, because the glottis does not participate in the convulsion. In the third form, both the glottis and diaphragm are simultaneously convulsed, respiration is first suspended, and one or more sonorous inspirations are heard, and, not being followed by expiration, asphyxia is soon imminent; these sonorous inspirations resemble the crowing of hooping-cough, and are produced by the same cause. Death may occur—1, during the attack from asphyxia; 2, it may result from cerebral congestion; or, 3, be the consequence of gradually increasing debility.

On dissection of the bodies of children who have died of this disorder, M. Hérard asserts, that no characteristic alteration can be detected. As to the hypertrophy of the thymus gland, Dr. Hérard refuses to admit that it has anything to do with the production of this form of asthma, and shows, from carefully drawn-up statistics, that the volume of the gland is in harmony with the state of health or weakness of the constitution, and not with the presence of asthma. It is not a little singular that anatomists should disagree on a point which would, at first sight, seem so easy to ascertain, as the question of the normal size of an organ; and it is not without surprise, that we find Meckel averaging its weight at twenty grammes, Burdach at twelve grammes, Haller at eight or ten, and Haugsted positively asserting, that in children of the same age, the gland may weigh from four to twenty grammes! Haugsted is much nearer to the truth, according to Dr. Hérard, who attributes the great size of the thymus entirely to the vigorous constitution of the child. The Germans place in the brain the cause of this malady, and refer it to an "arrêt de développement," marked by the incomplete ossification of the fontanelles, the enlargement of the liver, the patency of the foramen ovale of the heart, the late evolution of the teeth, and the hypertrophy of the thymus. Dr. Hérard cannot adopt this view, and observes, with much reason, that it is precisely in large, well-formed children that the thymus is found in a state of hypertrophy. Dr. Corrigan has considered inflammation of the cervical part of the spinal cord as a cause of spasma glottidis, and has published an interesting case in the *London Medical and Surgical Journal.* (1836), to illustrate this position. But this case, in which spinal irritation, at least, seems evidently to have produced the convulsive symptoms which now occupy our attention—this case has remained solitary; and, whilst it compels us to admit that it may occasionally bring on spasmodic contraction of the glottis, it leaves us at liberty to admit that it is far from being its only cause. The anatomical alteration which Dr. Hérard has met with constantly, viz., pulmonary emphysema, cannot by any means be looked upon as a cause, but as an effect of thymic asthma.—*Dr. M'Carthy*, in *Med. Times*, Nov. 6, 1847.

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30. *Thymic Asthma.*—In the *Abeille Médicale*, we find recorded several cases of this disease which terminated fatally. The author, Dr. Pury, found on dissection

a remarkable development of the thymus gland, and does not hesitate to ascribe the disease to the pressure of this enlarged body upon one or both lungs. He conceives that the morbid condition of the thymus recognizes for its principal cause a scrofulous hereditary predisposition, and a certain unknown and unhealthy condition of the maternal milk.—*Ib.*

31. *Post-Pharyngeal Abscess.* By Dr. Bessems.—This kind of abscess is either idiopathic or symptomatic; the latter is dependent on caries of the highest cervical vertebræ, and can hardly be mistaken. The idiopathic abscess, on the contrary, is sometimes difficult of diagnosis. To the idiopathic abscess the following observations are limited. This kind of abscess is confined to no period of life; but, as far as the cases hitherto recorded show, it is most apt to occur in early infancy, as from the age of a few weeks up to four years.

It has been observed to follow wounds or punctures, as from a wound of the back of the neck, and from puncture in swallowing a sharp-pointed bone, the irritation produced by a difficulty in deglutition, inflammation of the mucous membrane of the pharynx, dentition, and to have been connected with rheumatic disease, erysipelas, and also inflammation of the contents of the cranium.

It begins at different points in the posterior wall of the pharynx, and may be circumscribed or diffused. Above, the pus is confined by the petro-pharyngeal and occipito-pharyngeal aponeuroses; and in front by the deep layers of the cervical aponeurosis. But, notwithstanding the last-mentioned obstacle, the abscess sometimes extends to the sides of the neck, forming there tumours more or less voluminous. Beneath, there is nothing to confine it, so that it may even descend along the gullet into the posterior mediastinum.

This kind of abscess may be either acute or chronic, the former being more frequent. In one recorded case, however, the disease proved fatal by suffocation, after lasting for five months; and in another, which Desault cured by evacuating the pus, seventeen months had elapsed from the first appearance of the swelling; in a third, cured by Dr. M. Wade in the same manner, the patient had suffered severely from the disease for three months.

In the inflammatory stage pain, not always severe, impeded deglutition, most frequently redness of the pharynx, great stiffness of the neck, and even projection of the posterior wall of the pharynx, are present. Sometimes this last symptom is better ascertained by exploration with the finger than by inspection. When the stage of suppuration arrives, besides the ordinary constitutional effects of suppuration, increased difficulty of deglutition, rejection of fluids by the nostrils, noisy breathing, cough, alteration of the voice, and even symptoms imitative of croup arise. When the seat of the pus is low, the difficulty of discovering the tumour is great. By external examination of the neck, much assistance is often obtained and a displacement of the larynx is at times discoverable.

The difficulty of the diagnosis is much increased by the tendency to disorder of the stomach and of the brain under this disease of the pharynx. In one of the fatal cases recorded—in an infant, a year old—the disease set in with convulsions, and the true nature of it was not discovered till after death, though repeated examinations of the throat and neck were made, and it was discovered by the stethoscope that the lungs, bronchi, and trachea were free from disease. This disease was finally believed to be in the larynx, and tracheotomy proposed, which was refused by the parents. In this case the introduction of the finger would probably have discovered the nature of the disease in time to have saved the infant's life.

Nothing but an attentive examination of the pharynx can prevent this disease from being confounded with croup. In every case then resembling croup, the pharynx should be carefully explored, and this is more particularly necessary where no false membrane has made its appearance, or when the disease has shown the same intensity of symptoms for several days without a marked progress. In post-pharyngeal abscess, the difficulty of deglutition precedes that of respiration, which is not the case in croup. as there is no difficulty of deglutition unless where that disease is combined with cynanche tonsillaris; in post pharyngeal abscess, pressure on the larynx increases the labour of the respiration, which does not occur in croup.

It appears that this disease has been mistaken also for œdema of the glottis; but in the latter affection the difficulty of respiration, as compared with the facility of expiration, should be a sufficient ground of distinction, since in the former both are alike impeded.

When post-pharyngeal abscess assumes the chronic form, numerous errors of diagnosis are apt to occur; it has even been mistaken for polypus of the nose. It is enough to indicate the possibility of such errors to prevent their recurrence.

In some cases the abscess opens, and the pus being discharged by the mouth the patient recovers; in others suffocation takes place by the opening of the abscess; in others death occurs by asphyxia, owing to the compression produced by the size of the abscess; and lastly, in protracted cases, the fatal event is the consequence of defect of nutrition, owing to the interruption to deglutition.

When the abscess is recognized in sufficient time, and opened artificially, the patient seldom fails to recover.

The treatment in the inflammatory stage is obvious. Several methods of opening the abscess have been recommended, as the nail, the finger, or the handle of a wooden spoon. A bistoury, wrapt round with linen, or Petit's pharyngotome is often necessary. In some instances the abscess has to be opened in the neck, in which case the surgeon must proceed with much caution.—*Monthly Journ. Med. Sci.*, Aug., 1846, from *Gazette Med. Chirurg.*, 16 and 23 May, 1846.

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32. *Obliteration of a considerable portion of the Vena Cava inferior of some years' standing.*—Dr. Francis communicated to the Manchester Pathological Society, Aug. 5, 1847, the particulars of a case, in which a considerable portion of the vena cava inferior had been obliterated by inflammation some years previously to death.

The following is an account of the dissection of the vessel, and its afferent branches.

On reflecting the small intestines to the right side, an immensely dilated vein, running along the spine, close to the root of the mesentery, was exposed. This vessel—the left spermatic vein—was distended with blood, and had formed the main channel of the circulation from the lower half of the body. Above, it passed into the left renal vein, which also was proportionably increased in size downwards: after crossing the margin of the pelvis, it reached the ovary and left side of the uterus, along which it passed to the cervix. At this point it became lost in a large plexus of swollen veins surrounding the neck of the bladder, the vagina, and the rectum.

The whole of the vena cava below the renal veins, together with the common, the internal, and external iliac veins were completely obliterated. They were imbedded in a mass of strong, dense, fibro-cellular tissue—the result of inflammation that had extended around them. Their walls were thickened, and were, for the most part, firmly glued together, although in one or two places this had not happened.

The branches of the internal iliac vein about the pyriformis, and great sciatic hole were also obliterated, whilst the obturator veins were immensely enlarged and distended. There was no obstruction below Poupart's ligament; the femoral and saphæna veins communicated as usual; and about this part there were a great many large and abnormally developed veins, many of which were taking a direction towards the lower opening of the pelvis, and the obturator foramen.

The arteries, corresponding with these vessels, presented no abnormal appearances; the iliacs were accompanied each by a rather large vena comes.

In the lungs were several small vomicæ, with pneumonia and bronchitis; and in the left, a rather large vomica, lined with cicatrix tissue, and much puckered and contracted. There were many adhesions about the ovaries, and broad ligaments.

The patient, a woman 34 years of age, had been for nearly three years, from time to time, under Dr. Francis's care in the Manchester Workhouse. The symptoms which had induced her, during this time, to apply for relief, were always referred to the chest; and, indeed, the stethoscope had, from the commencement, detected the cavity in the chest, spoken of above. In addition to the chest affection, however, it was remarked that her legs were always much swollen, so that she was accustomed habitually to wear bandages around them. This swelling was of a firm and elastic kind, and did not pit upon pressure, after the manner of ordinary dropsical structures.

Among the most interesting features in the present case, attention was drawn to the unusual circumstance of the occurrence of so severe, and extensive an inflammation of the vena cava—and more especially of its termination in recovery. The remarkable manner, too, in which a compensating circulation had become developed, was particularly referred to.

In another case, which had been published by Dr. Black, where the inflammation, and obstruction of the cava had occurred at that portion of the vessel which is lodged behind the liver, the current of blood had been directed chiefly through the epigastric, intercostal, and mammary veins, whilst in other cases the vena azygos had taken upon itself the chief additional burden. In the present instance, however, the left spermatic vein had been chiefly instrumental in maintaining the circulation, having been fed by the obturator, the superficial, perineal, pudic, and other veins, which, in the ordinary state of parts, are small and insignificant. In regard to the cause of the phlebitis, no certain information could be gathered; it is probable, however, that it resulted from some affection during the puerperal state, which she is known, from collateral evidence, to have passed through with some difficulty.—*London Medical Gazette*, Oct., 1847.

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33. *Skoda's Treatment of Pneumonia.*—Dr. Geo. W. Balfour, in a paper read before the Medico-Chirurgical Society of Edinburgh, and published in the *Edinburgh Med. and Surg. Journ.*, (Oct. 1847,) gives the following account of the treatment for pneumonia pursued by Dr. Skoda in the General Hospital, Vienna.

"On entering on his duties, Dr. Skoda treated this disease according to the most approved principles. He drew blood from the system; leeched and blistered freely; giving at one time tartar-emetic in various doses; at another employing mercury equally freely. Becoming, however, skeptical as to the amount of benefit derived from such heroic treatment, he gradually left it off; and now nauseants and mercurials are equally unknown. Leeches, cupping-glasses, and blisters are never employed, and general bleeding only where the fever runs high, and the dyspnœa is great, previous to hepatization. After this has occurred, he regards the abstraction of blood as injurious, diminishing the chance of a speedy and complete absorption of the exudation. If dyspnœa or cyanosis be occasioned by a secretion of tough mucus, an emetic is given. His general treatment consists in giving a scruple of *Extractum graminis, ext. Glycyrrhizæ*, or some other equally innocuous extract; from ten to twenty grains of nitre, or latterly a quarter of a grain of corrosive sublimate, by way of attempting to reduce the plasticity of the blood. These remedies are dissolved in from six to eight ounces of water, and given, often warm, in the course of the day. From six to eight grains of Dover's powder are occasionally employed, or a grain or two of opium is given, according to the amount of pain and irritation present. Many patients are treated wholly without opium. All have a thick warm cloth (umschlag) laid over the chest. The temperature of the wards is about 60° F. summer and winter; and though well aired during the former season, they are close and ill-ventilated during the latter. The diet is in conformity with the habits of the people, and not more rigid than in other hospitals."

This method of treatment has been pursued, Dr. Balfour states, for three years, and the results have been most satisfactory.

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34. *On the Recent Differences of Opinion as to the cause of Scurvy.*—[Dr. Andrew Anderson in an interesting paper, read to the Medico-Chirurgical Society of Glasgow, Aug. 10th, 1847, and published in the *Monthly Journ. Med. Sci.*, (Sept. 18th,) endeavours to reconcile the opposite opinions which have been expressed as to the cause of scorbutus, and to show how different articles may be anti-scorbutic. He observes, we know—]

1. That it has been proved by authors, that while any debilitating and depressing agency may predispose to scurvy, its essential cause is improper food.

2. That food, to support human life, must contain fibrin, albumen, or casein—it signifies not whether they be of animal or of vegetable origin; and that to pro-

vide sufficient fuel for maintaining animal heat, non-azotized substances must in general be added, no matter whether they be amylaceous, saccharine, or oily.

3. That if nitrogenous food be absent, the body cannot be nourished, give as much of the other as you choose; and that if the latter be withheld, and the former taken in quantity sufficient to supply carbon to the oxygen absorbed, the system is apt to get loaded with superfluous nitrogenous matter, and gout, or worse, may follow.

But how is it that, both being given, the blood, if they alone be given, still becomes depraved, and scurvy is the consequence? It were easy to see a reason for this, if in all instances in which scurvy occurs, the quantity of nourishing food were, as in the Perth prison, too small; but there is abundant evidence to disprove this. Thus Dr. Curran (*Dublin Journal*) records a very bad case, in the person of a woman who had been fed on plenty of butcher meat, and bread and butter, tea and coffee, wine and porter. Dr. Ritchie saw one parallel to this; and during the discussion on Dr. Christison's paper in the Edinburgh Medico-Chirurgical Society (*Edinburgh Journal of Medical Science*, June), it was stated that the disease had occurred in a boy over-fed with animal food, and in a lady whose diet was butcher meat and milk. In these instances the food abounded in both varieties of the elements needful for nutrition, and yet it did not nourish well. How was this?

To find what was yet required, let us revert to the history of the prevention and cure of scurvy by lemon juice. This substance contains but 2 per cent. of solid matter, of which 1·77 is citric acid—(Christison's Dispensatory, *in loc.*) Four ounces daily will shortly cure a bad case of scurvy, and yet can contain no more than 40 grains of solids—solids too, which are not nitrogenous. This cannot possibly furnish pabulum to make the blood nutritious; and yet it removes the malady. The lady whose case I have just cited was rapidly cured by oranges, her diet being otherwise unchanged; in explanation of which I venture to suggest the following hypothesis:—

Food appropriate to man must consist of three parts—the nitrogenous, to nourish; the non-nitrogenous, to produce the extra heat required; and a third element, to aid in the assimilation of these. This element is furnished by the various, usually more or less acid, juices contained in vegetables and fruits. In favourable circumstances man may dispense with these, and live in tolerable health, but withal obnoxious to disease; and if he be weakened, as by confinement, or depression, or previous disease; or if the nourishment in the food be moreover scanty, as it was in the case of the prisoners at Perth, scurvy comes on.

All the substances eminent as anti-scorbutics contain more or less acid; and it is proved that the more acid the fruit, as Dr. Trotter found of guavas, the greater is its virtue.

I presume then that these juices and acids act, not by themselves supplying nourishment for the blood, but by in some way promoting the assimilation of the nutritive part of the food; and I would compare their efficacy in scurvy to that of iron in anæmia. The anæmic patient may be fed exceedingly, but he cannot assimilate the nutriment he digests without the aid of a metal which itself can be no pabulum to the blood. And so the scorbutic may eat enormously of flesh, which is blood (Liebig), yet cannot change it into *his own* blood without the aid of certain vegetable matter; an aid which seems essential, though how it is given no man can tell. Vinegar and nitre, and one or two substances besides, have been found to cure scurvy now and then (by Henderson, &c.), but they have failed at other times. They probably exert in the process of assimilation an agency more or less like that of citric acid, although not so uniform or powerful; and so I suppose that milk may, by means of the *lactic acid* produced while it is digested, and not by means of its casein, effect in some instances the cure of scurvy. If it did so in virtue of the casein it contained, cheese should have the same effect,—a thing I never heard of. And milk, like vinegar and nitre, seems to fail more often than it prospers; for Drs. Curran, Lonsdale, and Ritchie record cases of the disease as having happened in persons making free use of milk.

When the diet is nitrogenous enough, lemon juice will be more useful; but when, as in the Perth prison, it is not so, milk may be the best anti-scorbutic, because it will supply the essential food of the blood, as well as what I may call its condiment. That is, milk alone may in such a case be preferable to lemon juice alone; but, no doubt, "both are best."

Why is there sugar in milk? Not to form flesh of course. Not to produce caloric either; butter would serve that purpose well enough. The casein to nourish, —the oil to heat—is it not possible that the lactine may be intended to promote the assimilation of these by being first changed into lactic acid (as all nurses know it is), and by then supplying to the infant the want of that vegetable food which he does not receive, and could not digest; for the purpose, in short, of preventing scurvy? Dr. Andrew Buchanan well suggests that the *experimentum crucis* were to try whether *whey* would cure a man of scurvy.

And how do potatoes nourish men so well (*teste* Hiberniâ) that no other article of food will singly keep them in such health? Mr. Crum had shown (Philosophical Society of Glasgow) that four pounds of potatoes contain about as much albuminous matter as an egg:—the root then affords starch to heat, and nitrogen to nourish; but peas and beans, which do as much, will not serve as man's sole food. They are deficient in the third, the anti-scorbutic element, which Baly has shown to be possessed by the potato; hence its surpassing value—it is *milk for men.*

May we not in some such way as this, reconcile Dr. Christison's observations with common notions? The analysis which I am about to quote, prove that there is no necessary lack of fibrin in scorbutic blood; nay, that even in severe cases that element may be unnaturally plentiful, and the corpuscles, moreover, not much diminished. The darkness of the colour of the clot, and its occasional jelly-like consistency, indicate no doubt a depraved condition of the blood; but the startling rapidity of the cure by lemon-juice, appears to show that the error is in its vital structure, rather than in its chemical composition; and is repaired by putting into their right places, as it were, nutritive molecules already present in the fluid, rather than by the more tedious process of absorbing and adopting new materials.

When scurvy, however, does break out, it soon brings on anæmia; and then, of course, the corpuscles and the albumen are both progressively reduced in quantity, while the fibrin and the salts remain unchanged.

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35. *Scorbutus as observed in the Salpêtrière in* 1847; *and on the Composition of the Blood in this Disease.* By Dr. A. Fauvel.—Since scorbutus, yielding to the progress of hygiene, has almost disappeared in localities wherein it was heretofore endemic, no important work has appeared upon the history of this disease, of which the physicians of the last century have described the frequency and terrible effects. The work of Lind, so replete with facts and erudition, has not been surpassed, and the picture he sketched of the symptoms of the disease has served for the model of the most recent descriptions. The researches upon the composition of the blood in various diseases, undertaken with so much *éclat* in our own times, has, however, recalled the attention of physicians to this malady of a prior epoch. The reason of this new interest may be readily understood, when we consider that the fate of an entire doctrine depended upon the solution of the problem of the condition of the blood in scorbutus.

Chemistry having confirmed the importance of the inflammatory crust of the blood which clinical experience had long since ascertained, it was next inquired, whether, in another pathological condition, an inverse appearance of the blood did not correspond to an inverse chemical change. This question was only imperfectly answered by the analysis of the blood in some of the pyrexiæ, since in these a diminution of the fibrine was found to be far from manifesting itself as a constant fact in these diseases. Was it otherwise in regard to scorbutus? Everything led to the supposition. The dissolved state of the blood, mentioned and differently interpreted by Hoffman, Boerhaave, Huxham, Lind, and many others, gave a great probability to the conjecture: while Magendie succeeded in inducing phenomena in animals, analogous to those of scorbutus, by the injection into the veins of defibrinated blood or alkaline solutions.

Such was the state of the question when, in 1841, Andral, analyzing the blood of a man affected with scorbutus, found the proportion of fibrine less than the normal mean; and from that time the former conjectures were considered as confirmed; a rational explanation of symptoms was given; and an ingenious theory of hemorrhages, which appear in certain diseases of which scorbutus may be considered the type, was furnished. In the phlegmasiæ in which there is an increased quantity of fibrine in the blood, no hemorrhagic tendency is observed; but in typhus, scorbutus, and in other diseases in which the blood is in a more or less dissolved state, that is containing little fibrine, hemorrhages are frequent, and are produced independently of the essential differences which separate the various diseases. The hemorrhage is then a common phenomenon, dependent upon a common change in the composition of the blood in all these cases. If to this we add, that in certain other morbid states, in which the quantity of globules is greater than in the normal state, at the same time that the fibrine is unchanged, the hemorrhagic tendency is produced but with different characters, we naturally arrive at the distinction founded upon a change in the composition of the blood peculiar to each of these.

In vain did Mr. Busk declare that in several scorbutic patients he had found the fibrine augmented: and in vain did M. Stæber refer to the conclusions of Parmentier and Deyeux that the scorbutic blood they examined was identical with inflammatory blood. These statements were received with incredulity, as arising from some error in diagnosis or the process of examination. Yet it was desirable that new and numerous analyses should sanction the principle laid down by M. Andral from a solitary case: and this year an unusual opportunity offered itself to me at the Salpêtrière. Among the old women there, a few spots of ecchymosis on the limbs are not unfrequently seen: but for more than a year no case of scorbutus had shown itself; when last March, a woman æt. 76, strong and well for her age, became suddenly attacked by symptoms of it. Certain of these symptoms led to her being bled, and as no inflammatory complication was present, the usual state of the blood described by authors was expected to be found; but to my astonishment next day I found the clot covered by a yellow, firm, elastic, fibrinous layer, just such a one as is met with in simple pneumonia—the remainder of the clot offering no signs of dissolving. MM. Becquerel and Rodier were made acquainted with this unexpected result, and as a little epidemic of about thirty cases manifested itself during the next two months, they had ample opportunity of instituting more exact inquiries into the condition of the blood. The blood of five patients were submitted by them to analysis, and the following are the conclusions arrived at by these able chemists.

"1. That far from presenting a dissolved state, as the usually received theory supposes, the blood in these cases offered a well separated, and sometimes very firm clot, swimming in a limpid serum uncoloured by the presence of globules. 2. The density of the defibrinated blood was in all the cases below the normal mean (1057), and the figure 1038·3 observed in one case was lower than had ever yet been met with by MM. B. and R. Moreover this diminution of density, in the five cases, was not in relation with the respective proportions of water and solid matters of the blood—an extraordinary fact quite inexplicable. 3. That the density of the serum was notably lower than the normal figure. 4. That the quantity of globules was always less than normal, and was found very much diminished in the case corresponding to the lowest density of the blood. 5. That the *fibrine*, contrary to received ideas, *was not diminished in any of the cases.* In two cases it offered the normal proportions (2·2), while in the three others it was sensibly augmented, viz., 3, 3·6, and 4·1. It appeared to be endowed with all its ordinary physiological properties. 6. That the organic matters of the serum, of which *albumen* constitutes the larger portion, had undergone a notable diminution, while the water existed in a considerable proportion. 7. That in no case were the inorganic matters superabundant, and nothing proved an excess of alkalies, which sometimes authors have declared to be the case in the blood of the scorbutic."

Is it not remarkable thus to see the most rational previsions entirely overturned? Theory declared that in scorbutus the quantity of fibrine was diminished, whence arose a defective plasticity, the cause of the characteristic hemorrhages. It added that such diminution of fibrine might be the sole change, without necessitating that of the other organic elements of the blood. But the exact reverse of this has come to pass. The *globules* and *albumen*, which should have remained uninfluenced, are found to descend much below the physiological mean; while the *fibrine* exhibits an opposite tendency, so as to approach it to the condition observed in inflammations. Since the above analyses have been made, M. Andral has himself made another, and found the fibrine as high as 4·5; and M. Prus states that, he has frequently observed, at the Salpêtrière, facts analogous to these now brought forward. On the other hand, is it not interesting to see so large a diminution of *albumen* without any dropsy resulting, save a little œdema in the neighbourhood of much ecchymosis? Is there not here something which materially interests the theory of the production of dropsy by a diminution of the albumen of the blood?

But it will be said, do you pretend by these few cases to invalidate all the descriptions of the state of the blood in scorbutus handed down to us by the old writers? By no means. Only we would draw different conclusions from them. In fact, if we consult the principal authors who have written upon scorbutus, it becomes evident that they have given this name to diseases of a different nature, to true typhus; or that they have not taken into account the intercurrent affections arising during an epidemic of scorbutus, as of those which result from a putrid infection produced by the crowding together of patients in too small a space, as on board a ship. The dissolved state of the blood occurring under these circumstances would be easily explained.

And even supposing that in the great and destructive epidemics of scorbutus, the blood, deprived of fibrine, lost its power of coagulation, does it follow that this should always be the case? Is the quantity of fibrine constantly diminished in typhoid fever? To arrive at a knowledge of a disease, is it not necessary to study it in its most simple form, and to disengage it as much as possible from the complications which change its essential characters? It is precisely because the scorbutus we have observed presented itself in a simple but characteristic form, that the results we have adduced have an undeniable importance. They are neither numerous or conclusive enough to serve as a basis for any particular doctrine. They have only a negative value as tending to cast doubt on the doctrine of scorbutus prevailing in our time. They demonstrate the necessity of new researches, directed in other manners and by other proceedings, and undertaken upon a vast scale. Lastly, they confirm the utility of bearing in mind the maxim which Lind called the attention of the physicians of his time to—*Chymia egregia ancilla medicinæ; non alia pejor domina.*

Dr. Fauvel supplies a minute medical history of the cases observed by him, in proof of their being examples of genuine scorbutus: but to this we need very briefly refer. It showed itself chiefly in persons advanced in age, the youngest being 69 and three more than 80. They were all previously in good health, and fed upon substantial food. Among the principal symptoms observed was—(1). A *yellowish colouration of the entire skin, quite sui generis*, most comparable to the light yellow tinge which succeeds to ecchymosis. It affected especially the face, and extended to the conjunctivæ; but the urine giving no traces of colouring matter proved it was not icterus, which it so much resembled. This colour diminished and disappeared in proportion as the case proceeded on to recovery. (2). The *hemorrhagic spots* offered very different characters even upon the same subject, varying from mere red points to true purpural petechiæ. The most important variety was a true scorbutic hemorrhage, consisting of large ecchymoses or infiltrations into or below the subcutaneous cellular tissue of the lower extremities—occasionally constituting quite projecting tumefactions. Great pains frequently accompanied these effusions; and indurated œdematous infiltrations of the limb, together with pain and tenderness of the joints, were sometimes found. (3.) The *changes of the gums* were quite peculiar, not consisting in a general tumefaction and softening of their tissue as seen in some stomatites; but of fungous vegetations developed around the neck of each tooth, and being therefore only numerous in proportion to the number of teeth which remained. They were soft, and bled easily. Mastication was difficult, and the mouth exhaled a very fetid odour. (4). The *prostration of strength* of both body and mind was remarkable; although the tendency to syncope, mentioned by Lind, was not remarked—the patients, however, retaining the recumbent posture.

The *treatment* employed consisted in the use of a tisane acidulated with lemon, a mixture containing tannin and antiscorbutic syrup, linseed cataplasms watered with a decoction of bark, as substantial a regimen as the state of the mastication admitted of, composed of rich soups, roast meat, and as large a proportion of green vegetables as possible. In the course of treatment the juice of antiscorbutic herbs was substituted with great advantage for the tannin. Of nine patients, four were completely cured in an average period of two months, four still continued under treatment, and one died.—*Med.-Chir. Rev.*, Oct. 1847, from *Archives Générales de Méd.*, July, 1847.

36. *On Scurvy.* By. M. ANDRAL.—Subsequent to the result of MM. Becquerel and Rodier's investigations (see page 236) being communicated to the French Academy, M. Andral read an account of a new analysis which he had at the same time made of the blood drawn from a well-marked case of scorbutus under his own care at La Charité. The following is the substance of his important remarks.

"I expected to find it diffluent and dissolved, but to my great astonishment it was not so. It consisted, in fact, of a small dense coagulum as resistent as that of phlegmasiæ, and covered by a well-marked buffy coat, and was suspended in a large quantity of serum. In the 1000 parts it gave the following proportions:

Fibrine - - -	4·420
Globules - - -	44·400
Solid matters of the serum	76·554
Water - - - -	874·626
	1000·000

"This blood in its composition resembled that of chlorotic patients by the diminution of its globules, and the large quantity of water, although the patient presented other symptoms than those of mere chlorosis. As to the fibrine, instead of being less than, it exceeded, the physiological mean. This is quite a different result from that I obtained in the other published case, in which the globules were in nearly their normal proportion, and the fibrine was in very small quantity. So, too, I found very little (about 1 per 1000) in a patient attacked with purpura hemorrhagica.

"The fact which I have narrated, and which is confirmatory of those recently laid before the Academy, proves that the symptoms ordinarily characterizing scorbutus may be produced without being necessarily accompanied by a diminution of fibrine. It is not then in such diminution we can place the proximate cause of scorbutus; and it is not by it even we can hope to explain several of its symptoms, especially its characteristic hemorrhages. In this respect, as well as in several others, we may perhaps compare scorbutus with *typhoid fever*. In the latter, in fact, the lowering the proportion of fibrine is often met with, but it is not necessary for the existence of the disease. Observation only authorizes us to state that the diminution is considerable in proportion as the dynamic form of the disease is well pronounced. The same thing takes place in the eruptive fevers; so that, in these different cases, the diminution of fibrine cannot be considered as one of the necessary elements of the disease, but only as one of the more or less frequently occurring effects of the cause which has produced it, and which exerts its influence alike upon the vital forces which it tends to depress, upon the nervous system which it throws into great perturbation, and upon the blood in which it tends to produce an alteration, the reverse of that observed in phlegmasiæ. The same thing appears to me to take place in scorbutus. Like typhoid fever, it may become developed without the blood having previously lost its fibrine, and therefore a diminution of this is neither a necessary and constant occurrence, but only an effect, a result of prior morbid modifications, a result which is produced more or less frequently according to the severity, duration, &c., of the disease.

"Are we to refer the hemorrhages of scorbutus to this diminution of fibrine as their cause? There can be no doubt that hemorrhages which, like those of scorbutus, are multiplied and repeated at a great many points of the economy, are especially seen in those cases in which the blood itself has become more poor in fibrine than in the physiological state. But these are two facts which it seems to me are only coincident in their relation: both doubtless being most frequently produced under the influence of a common cause: both are but manifestations of that cause, but the one does not seem to me to engender the other. The case I have related presents an example of remarkable hemorrhages without any such diminution. Moreover, is it so easy to understand theoretically why a diminution of the quantity of fibrine should lead to a flow of this fluid from its vessels? Is the diameter of the globules diminished, so that they can more easily traverse the vascular parietes? Are we to admit that this passage may be favoured by an antecedent hypnæmia, when, after the violent distension of the vessels produced by inflammatory congestion such effect is not produced, and the globules do not leave their vessels but when these have been torn? This opinion, reproduced in our times, and which I myself have maintained, making the hemorrhages of scorbutus and pernicious fevers dependent upon a dissolved state of the blood, arose at a period when it was believed that this took place from the destruction of its globules; but such destruction, supposed by Huxham and so many others, is a pure hypothesis. Many a time, in cases in which the blood presented different degrees of this dissolved state, have I examined it with the microscope; and I have constantly found its globules with their ordinary appearance, and perfectly untouched. So, too, the globules in the blood from the hemorrhages possess all their physiological characters. I repeat, then, it is not easy to understand how the simple diminution of the fibrine should render their issue from the vessels more easy. In considering the augmented portion of fibrine observed in this patient, we must bear in mind, however, that when the bleeding was practised there were symptoms of acute disease of the respiratory organs, with much febrile reaction, and I believe it is to this circumstance we ought to attribute so large a proportion of fibrine. Some days after this bleeding had been practised, and probably in consequence of it, we could discover no traces of inflammatory action. Although the blood, at least three weeks prior to death, had not lost its fibrine, the spleen, nevertheless, was none the less soft and reduced to a pulp; so that we here see a change which, although generally coinciding with a dissolved state of the blood, may yet exist without it. The highly congested lungs, containing here and there apoplectic kernels, contrasted by their dark colour with the extreme paleness of the liver and kidneys."—*Med.-Chir. Rev.*, Oct. 1847, from *L'Union Médicale*, No. 78.

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37. *On the Sedative Effects of Astringent Substances.* By Dr. Seller.—The author set out with remarking, that the property of restraining excessive nervous susceptibility, of allaying morbid sensations and irregular vital acts, possessed in a high degree by narcotics, belonged to some substances besides, as to preparations of lead, fixed alkalies and alkaline carbonates, to some other remedies, usually placed among refrigerants, besides salts of lead, and, as generally acknowledged, to some substances in the order of astringents. It appeared to him, however, that this property is so universal among astringents, that it may be suspected to belong to them in virtue of their astringency. He then made some preliminary observations on the meaning of the term sedative, remarking, that this term, in its most general sense, might require extension rather than limitation; for while it was commonly employed, merely in reference to the mitigation of anormal states of the nervous system, of which the patient is conscious, it is highly probable that there are remedies capable of restraining the transmission, by nerves, of impressions—of which the patient is not immediately conscious—but which, nevertheless, may have the effect of producing the most serious morbid consequences. And thence he inferred it to be not unlikely, that many of our so-called specifics and alteratives act in this manner—silently controlling agencies which, left to operate with their natural force, neutralize the sanative efforts made by the constitution to throw off the disease. After illustrating this idea, he proceeded to review the ordinary sedative property possessed by such chemical astringents as lime water, sulphuric acid, alum, and sulphate of zinc, and by such vegetable astringents as catechu, kino, logwood, galls, rhatany, and uva ursi, with the purpose of bringing the facts recorded in the history of these substances to bear on his general conclusion, that astringent substances are sedative in virtue of their astringency.—*Proceedings of Medico-Chirurg. Soc. of Edinburgh*, in *Monthly Jour. Med. Sci.*, August 1846.

SURGICAL PATHOLOGY AND THERAPEUTICS AND OPERATIVE SURGERY.

38. *On the Use of Nitrate of Silver in the Cure of Erysipelas.*—Mr. Higginbottom has found that, if the nitrate of silver be applied *early*, it subdues local inflammation and irritation, if we employ, at the same time, the most efficient means for regulating the digestive organs.

At an early period of his practice, in slight cases of erysipelas, he used constitutional remedies alone, hoping that the inflammation would have been arrested; but, having been so often disappointed, he now uses both local and constitutional remedies simultaneously, and especially the nitrate of silver. Even in mild cases of erysipelas, in which he did not apply the nitrate of silver, he found the disease very long in duration, and observed that the patients had sometimes numerous small abscesses requiring the use of the lancet, which might have been prevented altogether by the early application of the nitrate of silver.

The objections he formerly entertained to the very early application of the nitrate of silver, were the pain and inconvenience attending the discoloration of the part on which it is applied, which remains for a week or more; but these objections are trifling compared with the continued severity of the disease, if permitted to run its usual course, particularly on the head, in which there is also great danger of inflammation of the membranes of the brain and of serous effusion. He has found that, when the inflammation has been subdued by an early use of the nitrate of silver, the constitutional symptoms were immediately relieved; the constitutional disturbance is directly aggravated by the least increase of local inflammation, and in a few hours, after a decided application of the nitrate of silver, the inflammation is arrested and gradually subdued, and with it the constitutional symptoms cease.

Even in idiopathic erysipelas, there is no period of the disease when he would not apply the nitrate of silver. He has never in any cases seen metastasis, or any other bad effect from the use of this important remedy.

When it is necessary to apply the nitrate of silver over an extensive surface, as in erysipelas, he has for some years used the concentrated solution in the manner proposed by Mr. John Gooch, surgeon R. N., in a paper published in the *Lancet* of September 15th, 1832, entitled "Practical Remarks on Erysipelas as it appeared on board his Majesty's ship *Prince Regent.*" The strength of the solution is not given in this paper; he prescribes it in the following manner: ℞.—Argenti nitratis, scr. iv; Acidi nitrici, gtt. vj; Aquæ destillatæ, dr. iv.

In erysipelas of the face, when it is spreading on the forehead, or at all on the scalp, the head should be shaved as early as possible, in order that we may trace the extent of the inflammation on the scalp, which often can only be detected by pain, or by an œdema being felt on pressure with the finger. The affected part should be well washed with soap and water to remove any oily substance from the skin, and afterwards with pure water, to wash away any particle of soap remaining. The concentrated solution may then be applied several times on the inflamed part, and for two or three inches beyond the inflamed margin on the healthy skin. It requires to be applied very freely all over the scalp, where it scarcely or never produces vesication.

In about twelve hours it will be seen if the solution has been well applied. If any inflamed spot be unaffected by it, it must be immediately re-applied to it. Sometimes even after the most decided application of the nitrate of silver the inflammation may spread, but it is then generally much less severe, and it is eventually checked by the repeated application of this remedy. He has in some cases of traumatic erysipelas, found the inflammation spread more severely and more rapidly than in the idiopathic, but by the free repeated application of the nitrate of silver, it has at length been subdued.

The great obstacle to the general and free use of the nitrate of silver, even at the present day, appears to arise from the impression on the minds of many surgeons that it is a caustic—a destructive agent. If they could be divested of that idea, and use it as freely as they would a common blister of cantharides, their fears would soon subside, from repeatedly observing the safety of the application, and also its beneficial effects. Mr. H. considers it a safer remedy than cantharides, as it may be applied freely over a surface, even where very active inflammation exists, or where there is an extensive surface denuded of its cuticle. This remedy has also the advantage of not affecting the bladder, or producing strangury.

The nitrate of silver is not a caustic in any sense of the word. It subdues inflammation, and induces resolution and the healing process. It preserves, and does not destroy, the part to which it is applied. If we compare a caustic, as the hydrate of potassa, with the nitrate of silver, we find that the hydrate of potassa destroys and induces a slough and the ulcerative process; but if we touch a part with the nitrate of silver, the eschar remains for a time, and then falls off, leaving the subjacent parts healed.

If an ulcerated surface secreting pus be touched by the nitrate of silver, the succeeding discharge is immediately converted into lymph: it is the property of the hydrate of potassa, on the contrary, to induce not only ulceration but suppuration. In short, the peculiar properties of the nitrate of silver have long been kept unknown to us by the designation of lunar caustic, affording the most striking instance of the influence of a term, or of a classification, upon the human mind. The nitrate of silver and the hydrate of potassa (as indeed all caustics) are as the poles to each other; the first preserves, the second destroys; the first induces cicatrization, the second ulceration.—*Read at the Prov. Med. and Surg. Assoc.*, Aug. 4th, 1847, from *Month Journ. of Med. Science*, Oct. 1847.

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39. *Axillary Aneurism—Ligature of Subclavian Artery—cure.* By James Syme, Esq. (*Month. Journ. of Med. Science*, Oct. 1847.)—The subject of this case was a gentleman, 34 years of age, who applied to Mr. Syme, July 25th, with an axillary aneurism of the right side. The aneurism was of large size, filling the axilla, and pressing forward the pectoral muscle, so as to be distinctly perceptible through the clothes. The patient stated, that about sixteen years ago he had fallen down a stair, and, by an involuntary effort to save himself, had seized the railing with his right hand, and consequently sustained a very severe wrench of the limb. With exception of some pain, and the ordinary uneasiness attending such an injury, he had not afterwards suffered any noticeable inconvenience further than an occasional difference of temperature in the hands, until about ten months ago, when he began to suffer from pain in the little and ring fingers, which gradually became almost constant and extremely distressing. More lately, the axillary tumour had attracted attention; and on the 29th, with the assistance of Drs. Duncan and Mackenzie, Mr. S. tied the subclavian artery, where it emerges from the scalenus anticus, by a single silk ligature, drawn with all the tightness in his power. No inconvenience whatever was experienced—the ligature separated on the fifteenth day, and the patient at the end of another fortnight returned home, perfectly free from pain, and with hardly any perceptible remnant of the tumour.

In performing the operation, Mr. S. made an incision along the clavicle, so as to extend over the edges of the sterno-mastoid and trapezius muscles, and another from the centre of this upwards, parallel with the edge of the latter muscle. The dissection was conducted entirely by the knife and forceps. The needle was passed under the artery, with its convexity upwards, and the ligature was tied by the unaided effort of the fingers. It has been advised to pass the needle with its convexity downwards, or towards the clavicle, with a view to protect the vein from injury. But this vessel is not at all in the way, while the cervical nerves are so situated in regard to the artery, as in general to render it nearly, if not quite, impossible to convey the ligature from below upwards. It has also been advised to employ the assistance of some mechanical contrivance for tightening the knot. But Mr. S. feels persuaded that the thread will always be within reach of the fingers, and may be more safely tied by them simply, than with the intervention of any instrument.

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40. *Ligature of the Common Iliac Artery for Inguinal Aneurism.* By Wm. Lyon, Esq., Surgeon to Royal Infirmary, Glasgow. (*Month. Journ. of Med. Sci.*, Oct. 1847. —The subject of this case was a man 53 years of age, tall, corpulent, relaxed, and in general, enjoying good health. The tumour was of the size of an expanded and arched hand, extending for three inches below, and rather further above Poupart's

ligament, slightly depressed in centre by ligament, nearly of equal breadth as length, and throbbing violently.

June 3d a ligature was applied about half an inch above the origin of internal iliac. For the first twenty-four hours the patient was, in every respect, in a favourable condition; after which sinking commenced, and without pain, or any appreciable lesion, he rapidly lost strength, retaining his mental powers to the last. Upon post-mortem examination, no vestiges of inflammation of any part of peritoneum were found, unless a small quantity of milky serum in track of wound be so reckoned.

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41. *Wound of the Internal Carotid Artery, and Division of the Par Vagum, in which the common Carotid Artery was tied.* By S. W. Fearn, Esq.—(*Prov. Med. and Surg. Journ.*, Sept. 8, 1847.)—The subject of this case was a female (Mrs. Osborn) 68 years of age, spare habit and nervous temperament. who was attacked at 5 P. M., Feb. 2d, 1847, by a man armed with a pruning knife, and received three severe stabs on the left side of the neck, and some others of a more trifling nature elsewhere. When seen by Mr. F., about three-quarters of an hour after the injury, she was in a state of extreme exhaustion. There was a deep wound about three inches in length immediately behind the angle of the jaw, extending perpendicularly downwards; another, a jagged wound, over the transverse processes of several of the middle cervical vertebræ, and a deep gaping wound midway between the occipital spinous process, and the mastoid process of the temporal bone; the other wounds being slight, need not be particularly described. There was a slight oozing of blood, but Mr. F. was unable to discover that any large arterial trunk had been injured. After waiting some time the wounds were dressed, and brandy and water were freely administered, as far as the difficulty in swallowing would permit.

Two hours after the injury, the patient, in getting out of bed to the night-chair, was attacked with an alarming hemorrhage, which, on removing the dressings, was found to proceed from the wound behind the angle of the jaw; the hemorrhage was arterial, and came forth in a stream as large as a swan-quill. Convinced that some large arterial trunk must be wounded, and most likely the internal carotid, Mr. F., in consultation, determined to place a ligature on the trunk of the common carotid. This he accordingly did, and the hemorrhage was at once arrested. The ligature came away on the 20th day, and the patient survived until the 22d of April, 79 days. During the whole of this period she had distressing difficulty of swallowing, suffered from suffocative cough, excited and very variable state of the circulation; extreme exhaustion, feebleness and emaciation came on, in which condition she sunk at the period mentioned. The following were the *post-mortem* appearances:

"Body emaciated; heart loaded with fat; lungs did not collapse on opening the chest; the left lung a good deal congested posteriorly, and the right also congested posteriorly, but to a less extent; there was much frothy muco-purulent matter in the larger bronchial tubes, and the bronchial membrane was much injected. In the neck, at the site of the ligature, the cellular membrane was condensed and firmly adherent to the adjoining structures; the point of ligation was well marked, and the artery was filled with a dense brownish-coloured fibrinous coagulum, which commenced about half an inch from the origin of the vessel; the artery was considerably diminished in size; above the ligature, and especially at the bifurcation, the vessel was contracted and hardened, and contained the same kind of fibrinous coagulum, but in a proportionately less quantity; in this situation, too, there was a very minute abscess in the coats of the artery; the posterior face of the internal carotid, immediately above the point where it is given off from the common trunk, presented a well-marked appearance of the wound which had furnished the alarming hemorrhage at the time of the injury, and in the same situation the *par vagum* was found to have been divided. (I have since found, in examining the parts after they had been some time in spirit, that the reddened line which had indicated the point of injury of the vessel, at the time of the dissection very distinctly, has disappeared from the maceration. The edges of the wound had closely united, and there is no trace of the wound on the internal coat of the artery." This condition of the parts is similar to what is stated to have occurred in the experiments of Béclard, and the *possibility* of which is likewise affirmed by Chelius. It should be stated that the wound of the vessel was *oblique* or *diagonal*, and that it had a length of about two lines. The vessel in the situation of the injury is perfectly permeable, and there is no appearance whatever of the 'plug of plastic matter' observed in the experiments of Saviard, Petit, and Scarpa.) (Vide '*Chelius' Surgery*, by South,' vol. i. p. 298.) The lower extremity of the divided nerve was shrunk and atrophied, and there was a slight enlargement (a neuroma) at the extremity of the upper divided end; there was no observable indication of wound, either of the pharynx or glottis; the subclavian artery of the left side, and the innominata with its chief and lesser branches, appeared to me to be of unusually large size. The viscera of the abdomen, and the contents of the cranium, were not examined, the friends of the patient being unwilling that any further investigation than of the parts immediately implicated should be made."

"The following," Mr. Fearn remarks, "are the chief points of interest in the foregoing case:—1st. The extreme rarity of the occurrence of a case of wound of a vessel of so much importance as the internal carotid, in which there is any opportunity of rendering surgical aid. 2d. The difficult deglutition and imperfect closure of the glottis in the act of swallowing. 3d. The excited and variable state of the circulation; and lastly, the engorged condition of the pulmonary vessels, and the consequent suffocative cough and abundant bronchial secretion.

"With regard to the first point I may state that I have been unable to meet with more than one recorded instance in which the internal carotid was *proved* to have been injured and in which the common carotid was tied. The case is related in Mr. Cooper's admirable Dictionary, and was under the care of Andersch; the common carotid was tied after a wound of the internal carotid, and the patient died on the eighth day. In the present case life was prolonged beyond the eleventh week, and looking to the state of the parts as revealed by the *post-mortem* examination, we may fairly be permitted to regard it, in a surgical point of view, as successful.

"Secondly, the difficulty of swallowing and imperfect closure of the glottis, which in the first instance were, perhaps very naturally, attributed to some injury of the pharynx and upper part of the respiratory tube, are beautifully explained by the fact of the *par vagum* having been divided. As one effect of this injury must be a paralysis of the recurrent laryngeal nerve, (a motor nerve,) and as it supplies, as I need hardly remind you, the inferior constrictor of the pharynx, and the crico and thyro-arytenoidei muscles, we are at no loss to understand the double embarrassment of the patient in the act of swallowing. Indeed so great was the distress occasioned, that at times it was almost impossible to prevail upon her to take even the small quantity of nutriment necessary to sustain life.

"The third and fourth points of interest,—namely, the irregular and hurried state of the circulation, and the difficult respiration, may properly be considered together. The irritation in the air-passages, and the abundant secretion and cough, arose probably from congestion of the pulmonary vessels, which I imagine to be caused by the sudden closure of one important outlet from the left side of the heart. It would naturally follow, if the free egress of the blood from the left ventricles were prevented, that the pulmonary veins must become engorged, and indeed the whole thoracic circulation must be obstructed—a condition which would give rise to great irritation of the pulmonary organs, and the abundant mucous secretion present in this case. A precisely similar state of things occurred in my patient, Mary Scattergood, upon whom I operated for aneurism of the arteria innominata, both after the ligature of the common carotid, and subsequently after tying the subclavian artery. I find, too, from an excellent paper by Professor Miller, of Edinburgh, in the *London and Edinburgh Monthly Journal of Medical Science*, 1842, that in the majority of the fatal cases of operation on the large arteries of the neck, he considers death is attributable to inflammation of the lungs; and my friend, Professor Fergusson, of King's College, seems to incline to the same opinion. Of course, under common circumstances, our sheet anchor in combating such symptoms would be repeated blood-lettings, and the administration of opium; but in the case of Mrs. Osborn, there were such frequent and alarming attacks of syncope, and the utter prostration and exhaustion from the loss of blood at the time of the injury were such, that we were repeatedly driven to the employment of stimulants in large quantity, when other symptoms seemed urgently to demand an antiphlogistic mode of treatment. In short, the advanced age of the patient, and the absolutely drained condition of the vascular system, in spite of the local engorgement, forbade the use of any other remedies than opiates, expectorants, and counter-irritants, due attention being at all times had to the state of the primæ viæ, and the persevering and almost hourly administration of nutriment."

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42. *Singular Case of Dissecting Aneurism.* By Prof. Pirrie, of Aberdeen.—In the body of a man, about fifty years of age, who, during life, had not been supposed to be the subject of any disease, and who died very suddenly, and before any medical man had an opportunity of seeing him, I met with a singular variety of dissecting aneurism. In the arch of the aorta, about three-fourths of an inch to the left side of the origin of the left subclavian artery, there was a rent of the inner and middle coats. From this rent to near the origin of the aorta, on the cardiac side, and for upwards of an inch on the capillary side, the external coat was separated from the middle, and also around nearly two-thirds of the circumference of the artery.

From the aneurism thus formed there was an opening upwards of half an inch in diameter, through which it burst into the pulmonary artery—a little below the part where that vessel gives off its two branches. The aorta was affected with steatomatous deposit in many parts, and, however rare the occurrence, there were, beyond all doubt, patches of the same kind of degeneration in the pulmonary artery. There was also slight hypertrophy of the left side of the heart.

In almost all recorded examples of dissecting aneurism, the heart has been found affected with disease, more especially its left side. In some instances there has been dilatation, with hypertrophy; in others, dilatation with attenuation; and, in many, there have been evident signs of steatomatous and calcareous deposits in different parts of the vascular system. According to Rokitansky, dissecting aneurism sometimes commences by disease of the *middle* and *internal* coats. In that case the continuity of these coats becomes interrupted, and the separation of the external coat follows as a later event. In other instances, the first deviation from healthy condition is chronic inflammation of the *external* coat, which gives rise to separation of that coat, followed by rupture of the middle and internal coats. In the one class of cases, he considers that the rupture precedes; in the other, that it follows the separation.—*Month. Journ. Med. Sci.* Nov. 1847.

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43. *Dislocation of the Pelvis.*—M. Murville, in a memoir, presented to the French Academy of Medicine, on luxations of the pelvic bones, relates the two following very remarkable examples of this accident. The first was the case of an officer, who fell from a second-floor window, and lighted on the tubera ischii. The sacrum was displaced downwards by the weight of the body. On examination, the crests of the ilia were found to be almost touching the false ribs; the os coccygis, much shattered, projected considerably below. The patient complained of great pain in the sacro-iliac symphysis, with paralysis of the bladder and rectum, small pulse, and other signs of collapse. He was restored somewhat by stimulants, and when reaction was fully established, he was treated antiphlogistically, the displaced bones being maintained as motionless as possible. No attempt at reduction was considered advisable. This treatment was marvellously successful; not only did the patient survive, but the paralysis diminished, and in ten days the patient was able to walk with difficulty.

The second case is unique. An officer during a review was run away with, the horse at the same time plunging violently; in one of the plunges he was thrown considerably from his saddle, upon which he descended again with such force as to lacerate the left side of the pelvic arch, without injuring the skin. A second plunge of the animal added to the mischief, completely rupturing the ligaments of the symphysis pubis. When examined, a large inguinal hernia was discovered on the left side, and in the perineum a tumour projected as large as the fist, which could be pushed upwards into the pelvis. The symphysis pubis was separated to an extent which allowed the hand to be insinuated between the ossa pubis. The hernia was reduced, and the bones kept in apposition by bandages, and in three months the patient was able to walk. M. Murville upon this case founded some remarks upon the feasibility of the operation of division of the symphysis in labour. In a discussion which ensued, M. Malgaigne doubted that it was a case of simple dislocation, thinking it probable that there was also fracture.—*Prov. Med. and Surg. Journ.*, Nov. 17th, 1847.

44. *Cauterization of Vesico-Vaginal Fistula with Creasote.* By Prof. EMMERT of Bern.—A vesico-vaginal fistula, subsequent to artificial labour, having been treated with lapis infernalis seventeen times without any success, Emmert proceeded to remove the gangrenous scab produced by the last cauterization, after which he touched the fistular opening to a great extent by means of a pencil-brush immersed in creasote. The success was most surprising. The new scab was so firm, as to enable the patient to retain her urine the whole day, and to micturate without becoming moist. The detachment also occurred much later than after the application of other caustics, and when effected, the urine flowed in far less quantity from the somewhat diminished fistula. A second application of creasote, six days afterwards, induced a perfect cure of the fistula, and no urine has passed from it, during two months, which has since elapsed. A fortnight after the last cauterization, Emmert found the fistula perfectly cicatrized, its previous existence being marked only by a bluish-red streak, two lines in length. He therefore declares creasote to be the best application in such cases, the nitrate of silver being too feeble, and the concentrated acids too energetic in their action. *Monthly Journ. Med. Sci.*, Aug. 1847, from *Journ. für Chir. and Augenheilk*, 1847. *Heft* 4.

45. *Fatal Cases of Tetanus with Dissections.*—Dr. LEE read to the *Medico-Chirurgical Society of Edinburgh*, an account of two fatal cases of tetanus with dissections. The patients were two girls; twins. They had both been complaining for about two days, before unequivocal tetanic symptoms set in on the morning of the fifteenth of April, during which they suffered from some derangement of the bowels, with anorexia, white tongue, and a tendency to spasm. They had no diarrhœa. The urgent tetanic symptoms terminated fatally in the one case in from three to four hours, in the other, in eight or ten hours. Contagious fevers were prevalent at the time in the same common stair.

On dissection, both the brain and spinal cord were found to be quite healthy; and there was no evidence in either of inflammatory disease in any part of the body; but the intestinal glands exhibited a morbid state, which Dr. L. considered characteristic of entero-mesenteric fever in a very early stage, an opinion in which he stated he was joined by Professor Goodsir, who had also examined the intestines.

Dr. Lee concluded by reading an unpublished case of a similar kind, which occurred to Mr. Goodsir, in Anstruther, in 1834, when dothinenteritis was prevalent there. In this case the patient was a young man of nineteen years; the tetanic symptoms came on early on the seventh day, and death followed the same night. The only morbid appearance was that of the glands of the intestines, which characterizes the entero-mesenteric fever. Dr. L. exhibited preparations (injected and uninjected) of the intestines of the two children, which belong to the Anatomical Museum of the Edinburgh University, and mentioned that Professor Goodsir had informed him that specimens of the diseased gut in his case are preserved in Dr. Bennett's private collection.—*Monthly Journ. Med. Sci.*, Aug. 1847.

46. *Case of Enlargement of the Labial Glands.*—By W. R. WILDE, Surgeon to St. Mark's Hospital. The subject of this case was a man twenty years of age, light hair and fair complexion, who stated, that about two years ago, his upper lip, which had been previously of natural proportions, began to thicken and enlarge, particularly on its inferior and inner surfaces. That, since then, it has gradually increased in size; that it has not been attended with pain, but that, within the last few months, he has a feeling of stiffness and fulness in it, as well as some degree of irritation, dryness, and chapping, from the exposure of the mucous membrane to the influence of the atmosphere, &c. He says that he has never suffered from glandular

swelling, or any scrofulous disease; never had venereal; and has always enjoyed very good general health.

Upon examination, I found the lower lip totally unaffected, as well as the extreme angles of the upper; but all the rest of the red border of this lip was immensely thickened, and so much enlarged that, when the mouth was closed, it formed a large, projecting, red mass, not unlike a pair of ripe strawberries, the division between them being caused by the natural central sulcus of the lip. If these projections were allowed to remain unwiped for some time, a number of globules, of a clear fluid, formed upon the surface of the mucous membrane. If one of these was removed, and the eye was kept steadily fixed upon the surface beneath, another clear drop of fluid was seen to exude from a remarkably small aperture in the mucous membrane. Squeezing the lip between the fingers, if the pressure was continued for some minutes, likewise caused these drops to form like a dew on the surface of the membrane. The membrane itself was rather more vascular than usual: where the drops exuded, it was particularly smooth and polished, but towards the edge of the lip it had become thickened, covered over with adhesive crusts, and cracked in several places. The external surface of the lip was natural.

As the young man was very anxious to be relieved of this deformity, I removed it in the following manner. Assistants having commanded the coronary circulation, by holding the angles of the lip, as in the operation for the removal of cancer of this part, I made an incision, with a small, sharp scalpel, through the mucous membrane, parallel with, and about three-eighths of an inch from, the edge of the lip, and about two inches and a half in length. By another incision, through the membrane, upon the dental surface of the lip, which was everted for the purpose, I completely included, and dissected out the diseased mass, which, during the progress of the operation, I found to consist of a congeries of small globular bodies, nearly transparent, and about the size of advanced trout-spawn. There was scarcely any hemorrhage during the operation, and any granules of the disease which were cut across, or adhered to the surface of the wound, having been completely removed, the edges of the incision were accurately adjusted, and sewed together by a fine silk ligature, after the manner of the continued suture. Upon shutting the mouth, the deformity was found to have been completely removed, and the edges of the lip met as before the supervention of the disease. A few hours after a smart hemorrhage occurred from the surface of the wound, but it was checked by the use of tincture of matico, and occasional pressure, which the patient was able to effect for himself.

Having submitted the diseased mass to Professor Aldridge for examination, I received from him the following statement:

"I have examined the portions of the upper lip which you sent me, and can find nothing but the natural structures in a state of considerable hypertrophy. This increased nutrition appears not only to have affected the reticular cellular tissue of the glands, but likewise the fibrous structure of the cutis. You know how difficult it commonly is to perceive the fibrous structure of the true skin in the human subject; in this instance you will be able to perceive it with the naked eye, and still more remarkably with a lens. This gives to the touch a leathery sensation, and I can easily understand that, if the induration proceeded a little further, the part would acquire a scirrhous hardness.

"The great development of the labial glands, in this case, renders their structure very easily studied. By introducing a bristle into the gaping excretory orifice of one, you will find that it passes, by a narrow neck, into the gland, which is oval and about the size of a swan-shot. This gland is what Müller calls 'folliculus conglomeratus.' As might be expected, the blood-vessels proceeding to these glands are comparatively of a considerable size. I have counted thirty-six excretory orifices on the surface of one of the labial prominences that you removed, so that I can easily conceive the amount of projection which thirty-six of these glands, situated behind the mucous membrane, must have produced.

"You will find that, by carefully raising the cuticular covering of the surface, a tubular process of the epidermis can be drawn out of the excretory duct.

"The cellular tissue connecting the glands with each other is not indurated. Neither are the glands themselves indurated, though hypertrophied.

"You may question my employing the words 'skin,' and 'mucous membrane,' in this case, as synonymous; but in what consists their difference?"

The wound healed so kindly that the cicatrix could scarcely be perceived in a week's time. Nine months afterwards this man had no return of the disease.—*Dublin Quarterly Journ. Med. Sci.*, Aug. 1847.

47. *New Process for Removal of Toe Nail.* By M. LONG, Surgeon to the Civil Hospital of Toulon.—M. Long, basing his idea on the mode of connection of the nail with the tissues, conceived it possible to tear away the nail by its root, by the aid of a simple spatula. Numerous experimental trials made on the dead subject confirmed him in this opinion, and he became able to remove the twenty nails in the short space of five minutes. Some of the nails on some bodies he found to tear, and a similar thing happens if the nail has been softened by topical applications.

The mode of proceeding M. Long finds to be of easy execution, quick, and but slightly painful, requiring no preparation, and but an ordinary iron spatula to effect it. The patient is seated on a chair, his foot being placed on the knee of the operator; the latter takes with his right hand the flattened end of the spatula, placing his thumb on the concave surface, his index and middle fingers on the convex, his two other fingers being disengaged. The spatula being thus held, the surgeon slowly separates the skin, which covers over the root of the nail. Having gained its posterior border, he executes a rapid movement from side to side, so as to bring the spatula to a very acute angle with the diseased toe. This being effected, the end of the spatula is found engaged beneath the nail, which still adheres by its sides and middle portion. Then, by pushing forward the instrument between the nail and subjacent tissues, the evulsion is accomplished without any further trouble.

Such is the operation adopted by M. Long, and he has always obtained good results from it. Among the patients operated on by him, one may be cited. He was a custom-house officer, whose nail of the right great toe was deeply buried at its sides in the flesh, to the depth of about two-fifths of an inch. The evulsion of the nail was practiced without pain, and without the loss of a drop of blood. The next day, morning, the patient returned to his employment, and fifteen days afterwards a new nail made its appearance. M. Long also performed the operation in a man suffering from traumatic onychia, and having his nail also grown over by the flesh; on the fourth day the patient got up, and on the twentieth left the hospital, a new nail beginning to appear.

The proceeding advocated by M. Long, seems adapted for all cases, in which the evulsion of the nail becomes necessary. The advantages it offers are—1st, the prospect of a complete and definite cure; 2d, the sparing the patient great suffering; 3d, its performance being attended with no loss of blood; 4th, and lastly, always allowing the tissues to reproduce a new nail.—*Lancet*, Sept. 18, from *Gaz. Méd. de Montpellier*.

48. *On Abscess of the Female Breast.*—By M. VELPEAU.—"Subcutaneous inflammation of the breast proceeds much as an ordinary phlegmon. When the abscess is formed between the mamma and the chest, the swelling is considerable, the breast raised up, but after an incision the cure usually takes place rapidly. But when the phlegmasia invades the substance of the breast itself, it is rare to find only a single abscess produced. We sometimes see ten, twenty, forty or fifty manifesting themselves in succession. An instant's reflection will show that this result is a natural consequence of the anatomical disposition of the inflamed tissue. The glandular parenchyma consists of different lobules, each of which constitutes a little organ having its own function, and which may become heated and irritated under the influence of lactation. Each lobule does not attain at the same time the same degree of irritation. One first inflames, then suppurates, and constitutes a first abscess; a neighbouring lobule then becomes affected, and, in its turn, forms an abscess; and so it may go on with all of them until we have as many successive abscesses as there are lobules.

"This distinction of abscesses of the breast into at least three orders is of the highest importance; and if we do not adopt it, our ideas upon the subject will be but very vague, and devoid of all precision as respects prognosis and treatment. Parenchymatous abscesses may last four or six months, or a year even, according to the rapidity of their succession and their number. The subcutaneous abscess lasts only as long as an ordinary phlegmon; and the submammary abscess has not the long duration of the parenchymatous one.

"Each of these has again its special treatment. We may endeavour to procure the resolution of *subcutaneous abscess*, and that by ordinary means: and, if suppuration occurs, we open it promptly, in order to avoid the burrowing of the pus among the tissues. *Sub-mammary phlegmon* should be treated especially by general measures, and leeches around the nipple. Topical applications are of little use, as they are separated from the centre of inflammation by the whole substance of the mammary gland. When an abscess is formed here, its prompt evacuation is desirable; but the perception of fluctuation is difficult, for the pus is surrounded by a large mass of tissues, and the thoracic parietes have not fixity enough to serve as a point of support. Nevertheless, you may recognize the existence of pus by the following characters. 1. An acute phlegmon rarely exists more than seven or eight days without suppuration taking place. 2. The breast is raised up like a sponge, and if we press upon it, it seems as if it were lying on a bladder full of fluid. 3. We find the breast surrounded by a kind of inflammatory œdema. Having recognized the pus, we should let it out promptly, or we expose ourselves to seeing it traverse the gland and form one of those abscesses I call *shirt-buttons*. These abscesses, moreover, have a mischievous influence upon the chest, and may lead to a purulent pleurisy. They may, too, penetrate into the cellular tissue for a distance, and give rise to a diffused phlegmon. The incision should be made into the most dependent part, the place of election being below and at the outer side of the nipple; but, in some cases, a projecting point of the abscess indicates the place at which the opening should be made. It is always advantageous to make the incision towards the circumference of the breast, because the gland itself is not touched, and its weight tends to expel the pus. The bistoury should be directed almost parallel with the thoracic parietes, so as to slide it in between these and the mamma. The danger of such incisions is not great, there being no large arteries to fear. *Parenchymatous phlegmon* requires an energetic and varied treatment—bleeding, purging, and the so-called anti-lactal medicines. When pus forms, which is almost always the case, topical applications and incisions seldom prevent the successive implication of the lobules. Nevertheless, there is some advantage derived from the prompt opening of the abscess, *if the patient agrees to it;* for you should recollect that, in practice, if you open one abscess and others form, she never fails attributing these to your proceedings. These details will, I think, suffice to show you how important it is to distinguish the different abscesses of the breast, and to explain to you the confusion which prevails in the minds of some surgeons, as regards their treatment."—*Med.-Chir. Rev.*, Oct., 1847, from *Gazette des Hôpitaux*, No. 89.

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49 *Indurated Chancre of the Neck of the Uterus.*—Although most, if not all, surgeons now admit the possibility of the existence of chancres on the os and cervix uteri, yet few cases are on record; and the following abstract of one occurring in the practice of M. Cullerier, at the Hôpital de Lourcine, may prove interesting:—

A woman, seven months gone in pregnancy, entered the hospital, presenting, at the time of admission, a squamous and tubercular eruption over all the limbs. She stated that, up to the date of admission, she had been ill two months; that at the commencement of the disease, there appeared an ulcer on one of the external labia, and a profuse discharge from the vagina. On examination the morning after her admission, no trace of any ulceration was observed on the labia, but there was a vaginal discharge still going on. Examined by the speculum, the neck of the uterus was observed to be enlarged and flattened antero-posteriorly, so as to present a greater transverse diameter. Nearly two-thirds of the anterior lip were occupied by an ulcerated surface, of a grayish-yellow colour, and circumscribed by a circular margin of a deep-red colour. At first this ulcer was taken for a simple one, unconnected with syphilis; but at subsequent examinations, M. Cullerier was led to believe it to be analogous to an indurated syphilitic ulcer, in which opinion he was afterwards confirmed by the touch, which rendered sensible that peculiar resistance which is noticed on touching an indurated chancre on the glans penis, and is readily distinguishable from the hardness of the substance of the cervix uteri. It ought, however, to be mentioned, that on inoculation being practised with the pus of the ulcer, the result has been negative.

M. Cullerier immediately placed the patient under mercurial treatment, notwithstanding her pregnant condition, being convinced that, among pregnant women suffering from syphilis, abortion is much more frequently brought about by the syphilis than by mercury when administered. Since the adoption of this general treatment, the cutaneous affection notably improved, and soon scarcely any trace was visible on the arms and hands.

Simple chancre, as we have remarked, is now acknowledged by nearly all as sometimes occurring on the cervix uteri. But M. Ph. Boyer denies this, as also, their existence within the vagina, saying, that his experience has proved to him, that neither mucous membranes are ever the seat of chancre, nor the vagina and cervix uteri. But observation certainly contradicts this statement of M. Boyer; for many have met with syphilitic ulcers on the cervix uteri, and have, by inoculation proved their nature; and M. Ricord has described and figured many such cases. Admitting, therefore, the existence of chancres on the neck of the womb, it may be asked—Can they ever become indurated? We have, *a priori*, no grounds to believe, that chancres occupying that position, should be exempt from induration, and observation, indeed, proves they are not. M. Baumès, in his treatise on venereal diseases, gives a case, with a plate, where, with constitutional syphilis, two indurated ulcers were seated on the cervix uteri without there being any other local manifestation of the disease; and M. Ricord has met with several parallel instances.

In M. Cullerier's case, it seems impossible to doubt the infection of the system from the indurated uterine chancre, nor can the negative result of the inoculation practised, be looked upon as contradicting this view; for, from the history of the patient, we may consider the ulcer to have passed that stage in its duration, when inoculation from it would be successful. We may suppose the ulcer, said to have existed on the external labia, to have been a chancre, although no trace of it existed on examination; but there remained no hardened cicatrix to intimate in the least that it had been an indurated one; if it had been, some indication would have been left, since the patient had been under no treatment. That indurated chancres on the cervix uteri have not been more frequently observed, seems owing to the difficulty of diagnosing them; for we are unable to seize them between the fingers, as in ordinary cases, and can only decide from their general hard feel and their appearance; and often, too, such chancres are no doubt mistaken for simple ulcers.

It is to the French surgeons, that we owe our knowledge of the existence of chancres within the vagina and on the neck of the uterus, and especially to M. Ricord, since the examinations necessary to detect them are not so much attended to in this country, and are not made with so great facility as in France. But the discovery of such centres of inoculation of the whole system by absorption, will be seen by all to be a matter of great moment, in order, as soon as possible, to bring about their cicatrization; and as such it should be attended to by British surgeons.—*Lancet*, Sept. 25th, 1847.

OPHTHALMOLOGY.

50. *Induction of Mercurial Salivation previous to operations for Cataract.*—M. Tavignot, in a communication read to the French Academy of Sciences, states:—

The beneficial influence exercised by salivation over acute inflammations of the iris and cornea is generally acknowledged. These affections being the usual cause of failure in operations for cataract, it occurred to me whether their development might not, to a certain point, be prevented by producing a commencement of salivation before proceeding to the operation. The idea seemed to be worthy an attentive examination, because salivation cannot be procured in an instant at the wish of the surgeon, and during the time it takes to establish it the inflammation may produce irremediable mischief; besides the inconveniences of a moderate salivation are but trifling in comparison to the dangers which are avoided in consequence.

"I have operated by depression on three patients thus prepared. One had a double cataract. In the second the operation was tedious, and followed by hemorrhage into both chambers of the eye. The third had an adherent cataract, complicated with a synochia anterior. The three cases were perfectly cured in a time varying from three to five weeks, without any serious inflammatory attack. Only one had a slight conjunctivitis. I will only add that the operation should be proceeded with on the first appearance of the precursors of salivation. The administration of the mercury is to be continued for two or three days that ptyalism may be at its height, at the period when iritis or corneitis usually occur; that is, from the third to the sixth day from the operation. That period past, there is not much danger of subsequent inflammation."

[M. Tavignot must be a very unfortunate operator if "iritis or corneitis usually occur" after his operations for cataract, or even "hemorrage into both chambers of the eye." We would respectfully submit whether it would not be advisable to adopt a different method of operating from that which he employs, rather than for the insufficient reason he assigns to subject patients to the evils of salivation. The fact, that mercury is often efficacious in arresting inflammation, affords slender reason for introducing it into the system, to prevent the occurrence of that accident. The mercurialization of a patient will not protect him from the sequence of a badly performed operation.]

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51. *Syphilitic Ophthalmitis.*—Prof. PORTER in his interesting Clinical Lectures on Syphilis, (*Dublin Med. Press*, Ap. 7th, 1847,) thus describes this disease: "There is still another form in which syphilis may attack the eye, fortunately of far less frequent occurrence than that already described, for it is uniformly and certainly destructive, baffling every treatment, and progressing, without stay or interruption, to its melancholy termination: yet perhaps its infrequency is one reason why a surgeon should be aware of the possibility of its occurrence, more particularly as its commencement is as insidious as its end unfortunate. In this case there is, or appears to be, a universal inflammation of the organ, commencing in, and principally confined to the deeper structures, but eventually implicating all, and terminating in what Mr. Hewson, who first described the affection, has (perhaps erroneously) called an abscess. It begins by a deep, intense, and agonizing pain in the bottom of the eye, in the temple, and, perhaps, in one side of the head, which pain is aggravated at night, at which time the patient's sufferings are indescribable: the eye, notwithstanding, exhibiting little or no alteration to lead to a suspicion of the impending mischief. The next symptoms are an evident enlargement of the whole ball, with a fixed immobility of the iris, which appears pressed forwards into the anterior chamber, and whether contracted or dilated, is wholly insensible to the stimulus of light. Perhaps this might be termed the first stage of the disease, and, perhaps, also up to this period it might be possible to arrest its progress, and save the eye by a rapid exhibition of mercury, but the nature of the malady is not suspected, and the opportunity, if it really exists, is allowed to pass away. I say if it really exists, for I have some doubts on the subject, and my own experience can afford me no assistance: certainly when the disease has advanced so far as to be easily recognized, it admits of no remedy, and mercury, instead of mitigating the patient's sufferings, has seemed to me to enhance them considerably. Now, whether produced by the swelling and enlargement of the ball or not, I cannot say, but soon symptoms of conjunctival and sclerotic ophthalmia make their appearance—vascularity, increased secretion of tears, pain, and a sensation as if a grain of sand or other irritating substance had been admitted under the palpebræ, and at this period, on looking deeply into the eye, a yellow opaque substance is generally perceived deeper than the iris, and as if fixed in the vitreous humour. The next step is that the eye assumes somewhat of the appearance of an abscess. A yellow spot is seen on the sclerotic, external to the cornea, which is soft and prominent, and presents precisely the characters of an abscess about to burst. Occasionally, even in the same eye, a similar demonstration of pointing is observed on the iris, as if the matter was about to make its way into

the anterior chamber. At length, after intense and protracted suffering, the swelling bursts in one or both these situations, and a mass of yellow tenacious lymph is pushed forwards, but not discharged, neither does the eyeball collapse. This lymph comes away in flakes and strings, is detached very slowly, and in proportion as it escape the pain abates, but the eye falls down within the socket, and not only is vision lost, but a very unsightly deformity remains that can only be palliated by the closure of the lids, or the adaptation of an artificial eye. It is well for the patient that this disease never attacks both eyes at the same time, and seldom passes from one eye to the other, and thus although condemned to lose the one by a painful, harassing, and nearly incurable affection, he is in less danger of total blindness than from the disease previously described—that which is usually called iritis."

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52. *New Mode of Curing Ectropion.*—DR. BLANBERY regards this affection as mainly induced by a peculiar state of the orbicularis muscle, consisting in a preponderance of contractility in the fibres which surround those which form the ciliary portion of the muscle. In a man, aged fifty, with ectropion, Dr. Blanbery found a furrow below the ciliary margin of the lower lid, which became deeper every time the patient closed his eyes forcibly. He made a vertical incision in the lid, and divided some contracted fibres of the muscle, and thus removed the deformity.—*Prov. Med. and Surg. Journ.*, 22d Sept., from *Gazetta di Milano*, 27th Feb., 1847.

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53. *Malignant Disease of the Eyeball.*—Mr. HENSELEY related to the Bath Pathological Society, April 15th, 1847, the following case:—

"A female servant, twenty years of age, had been for two or three months previous to September, 1846, complaining of weakness and loss of health. She had observed a tumour above the left eye, about the size of a small marble, at the upper and inner part of the orbit. It had, on examination, much the feeling of an encysted tumour. The eye was very prominent, and thrust a little outwards. The sight at this time was not much impaired. For some time the tumour appeared stationary, but early in October it began to enlarge: the skin covering it assumed a livid hue; there was effusion beneath the conjunctiva, which produced chemosis. The eye became more prominent; she suffered great pain in the ball itself, but more in the back part of the head. The tumour continued to increase in size; the cornea separated, and the lens and humours of the eye escaped. In December, the other eye became affected, and rapidly increased in size; the cornea separated, and the humours escaped as before. During this time her strength had greatly diminished; she was scarcely able to move in her bed; the pain was most intense, coming on in paroxysms. She often fell into a comatose condition, in which she sometimes remained for twenty-four hours, and was several times thought to be dying, when she would rouse up, call for food, and drink, and make a good dinner, and then in a little time, fall into the same comatose condition again. This state continued for about six months, the intervals of consciousness becoming longer towards the close of that period. There was frequently a discharge of blood from the left eye, and a fœtid discharge from the nostrils. She died at the end of January.

On removing the scalp after death, a bluish-looking spot, about one-third of an inch in length, and one-eighth in breadth, was seen at the posterior inferior angle of the right parietal bone. On separating the pericranium, which was easily accomplished, this spot was found to be a hole in the bone, perforating it completely. Around the hole, the bone was found to be more vascular than usual, and there were several smaller perforations. The bones of the head, generally, were very thin; and on holding the skull-cap between you and the light, it appeared translucent, and at many points perforated. The whole of the inner surface, more especially the posterior portion, (the part where she had felt so much pain during life,) was rough, having the feeling and appearance of grains of sand scattered over it. At the spot corresponding to the perforation of the parietal bone, there were several very large Pacchionian glands, and the dura mater was firmly adherent to the bone, and very vascular. There was slight sub-arachnoid effusion. The anterior lobes of the cerebrum were softened and disorganized, presenting a pulpy mass, which could with difficulty be removed from its position. The dura mater around was nearly one-quarter of an inch in thickness, and semi-cartilaginous, and adhered so closely to the bone, as to render its detachment impossible A considerable portion of the orbital plates of the frontal bone, more particularly on the left side, and also parts of the ethmoid and sphenoid bones, were destroyed. The optic nerves appeared healthy; the pituitary body was much softened.—*Prov. Med. and Surg. Journ.*, Nov. 17th, 1847.

MIDWIFERY.

54. *On the Primary cause of Puerperal Fever.* By DR. SCANZONI, of Prague.—Dr. S. commences by stating that the wound produced on the internal surface of the uterus by the detachment of the placenta during parturition, is universally regarded as the peculiar cause of puerperal fever. He considers this view too exclusive, and in opposition to it mentions two or three cases where the symptoms of puerperal fever had shown themselves before labour had commenced, and continued after it to a fatal termination, and there was no hemorrhage, nor putrefaction of the placenta to indicate that that organ had been detached before the proper period of labour. Dr. S. then believes that "the seed of the disease is sown before the commencement of labour;" accordingly he seeks for the germ of the disease in the blood, and, as the peculiar condition of the blood of a puerperal is formed from that of a pregnant female, he conceives that the special predisposing causes of puerperal fever exist in the composition of the blood. In proof of this, the author mentions that in those cases which came under his own observation, where that composition of the blood, which is peculiar to pregnant women, was totally prevented from taking place, or was modified by the presence of some other dyscrasia, the patients were never attacked with puerperal fever, although exposed, in an eminent degree, to that combination of circumstances which is supposed to induce it; and, on the other hand, when, during pregnancy, females are attacked with any disease depending on hyperinosis of the blood, such patients are very liable to suffer from puerperal inflammations, accompanied by copious fibrinous exudations. The author refers to the writings of Helm, Kiwisch, Rokitansky, and Engel, showing that the blood of puerperal females is in a state of hyperinosis, *i. e.* containing an excess of fibrine. The author saw that strong healthy women, in whom this state of hyperinosis of the blood natural to pregnancy had attained its full development, suffered, during a severe epidemic, under that form of puerperal disease which gave indications of an excess of fibrine in the blood, viz. endometritis or peritonitis, accompanied with copious fibrinous exudation, such as is met with in pleuritis and pneumonia.

Physiologists are as yet unable to explain how this augmentation of fibrine is produced. Fibrinous deposits are frequently found in or upon the placentas of mature children, but very rarely has the same alteration been found in the case of premature fœtuses. These deposits are mostly confined to the two last months of pregnancy, and their existence may, according to our author, be accounted for by the active interchange of material which, toward the end of pregnancy, takes place between the maternal and the fœtal blood; the former abounds in fibrine, and if the consumption of this element on the part of the child be diminished, whilst the supply afforded by the mother remain the same, fibrinous deposits must take place, and these probably on the inner surface of the uterus: this is a fact our author has been unable to ascertain, as the inspection of the bodies of women dying during pregnancy are exceedingly rare. The fibrinous deposits in the placenta, however, according to Dr. S., prove that the fœtus does not consume all the fibrine supplied to it, and they lend probability to the idea, that in consequence of the continually increasing supply of fibrine in the circulation of the mother, and the comparatively small consumption of that element on the part of the child, an abnormal accumulation of fibrine must be the result, constituting hyperinosis in the mother.

This fibrinous diathesis, in pregnant females, may pass into secondary dropsy or purulent deposit; secondary dropsy follows from the anemia gradually developed in consequence of the blood being generally impoverished by copious fibrinous exudation; the dropsical effusion frequently possesses a sero-purulent character.

Purulent deposits may take place in pregnant females, in consequence either of the primary formation of pus in the blood, or of its absorption from an ulcerating surface. According to Mulder, the tritoxyde of protein—or pyin, as some have termed it—contained in the buffy coat of the blood, and which is also more abundant in hyperinotic than in normal blood, has a great tendency to be transformed into pus; which confirms what we might *à priori* have expected, that pus may be formed in the blood, and that it need not necessarily be derived from some ulcerating surface of the body. This is also confirmed by those cases related by the author, in which all the symptoms characteristic of the formation of pus appeared some time before parturition, and were speedily followed thereafter by a fatal termination: it is further corroborated by the fact, that the effects of pyemia are so very frequently observed during puerperal epidemics, and so very rarely in sporadic endometritis or peritonitis; and also by the fact, that the constitution of the atmosphere, about the patient, exercises such a very powerful influence in originating the disease. To the objection that an impure atmosphere exerts its baneful influence as well upon the raw uterine surface as upon the blood circulating through the lungs, and that its local action upon either the one or the other of these organs may, with equal truth be regarded as the primary cause of the disease, the author replies with the fact—which is not unfrequently observed in lying-in wards—that among, say ten or twelve women in the same ward, one in whom labour has been perfectly normal and easy, may speedily show all the indications of puerperal fever, with pyema, and rapidly die; whilst another, in whom a wound really has been inflicted on the uterus by the forcible detachment of an adherent placenta, recovers, without a bad symptom, in a few days:—thus arguing, that the two females being, as far as regards the atmosphere, *in pari statu*, if the noxious influence residing in the air act only on the raw surface of the uterus, the latter patient should have been attacked with the disease, and not the former; but this not being the case, he regards it as a proof that the noxious properties of the atmosphere act with equal, if not greater power, through the lungs than through the uterus. This cannot be doubted, from what has been lately seen of the immense activity of various vapours administered by inhalation. The author regards pus in the veins as an extremely rare appearance, but as very common in the lymphatics; it is found in them either as a consequence of absorption from a distant part, or of inflammation of their proper tissue (lymphangeitis). Among lymphatics of the uterus filled with pus, Dr. S. has found others filled with fibrinous exudation. The latter he regards as a proof that the pus contained in the former does not owe its origin to absorption from a distant ulcerated surface; but that the former also were, at a previous period, filled with fibrinous exudation, which only became purulent secondarily, under the influence of the suppurative process going on in the blood.

The conclusions which Dr. Scanzoni arrives at, are,—1*st*. That a rawness of the internal surface of the uterus does not constitute the sole and only predisposing cause of puerperal fever, but that this consists in a peculiar constitution of the blood. 2*dly*. That this peculiar condition of the blood is indicated by an increase in the quantity of fibrine. 3*dly*. When this increase becomes excessive in a high degree, it constitutes the primary cause of the disease; or it is, in short, in itself the "essence of genuine puerperal fever." 4*thly*. The genuine disease is characterized by the fibrinous type; no other type is genuine, but can only be developed secondarily out of the fibrinous. 5*thly*. Hypinosis of the blood gives immunity against that form of puerperal disease accompanied by fibrinous exudation; it gives but little protection against the suppurative, and none against the typhoid form. 6*thly*. The hyperinotic form of the disease frequently, during epidemics, passes into the purulent or into the typhoid form. 7*thly*. The two last forms may be developed either primarily in the blood, or secondarily by the absorption of pus. 8*thly*. This absorption can take place from suppuration on the surface in the tissue, or appendages of the uterus, or from the placenta. 9*thly*. The cases which run the most rapid course are those which are the result of a primary disease of the blood; the less acute are the result of absorption.—*Monthly Journ.*

Med. Sci., Nov. 1847, from *Prager Vierteljahrschrift für die pract. Heilkunde*, 1846, Bd. xii. S. 1.

55. *Puerperal Convulsions connected with Inflammation of the Kidney.*—Prof. Simpson, in a paper read to the Obstetric Society of Edinburgh, June 15th, pointed out the connection of puerperal convulsions with derangement of the kidney as a very striking fact in Obstetric Pathology. He had seen *post-mortem* appearances of nephritis in some fatal cases of convulsions.

Case I.—In this case, the patient, a delicate female, was exhausted by the pains of labour, and complaining of severe headache when the convulsions supervened. Dr. Niven promptly and easily delivered the child, which was dead, by turning. The convulsions gradually subsided, but re-appeared several times. In the intervals she was profoundly comatose; and, in this state, she died about forty hours after the first attack.

Post-mortem Appearances.—When the lateral ventricle of the right side was opened, fluid blood escaped. The corpus striatum and outer part of the optic thalamus were broken up, and mixed with a large quantity of coagulated blood, forming a clot of large size. The fluid blood was found in the opposite lateral ventricle, also in the third and fourth ventricles. The right kidney was converted into numerous cysts, of about the size of a walnut, containing unhealthy pus, which passed along the ureter and filled the bladder. The left kidney exhibited an advanced stage of Bright's disease.

Case II—Dr. S. lately saw with Dr. Carmichael. The lady had so perfectly recovered after a labour which was quite natural, as to have been out at church, &c. Seven weeks, however, after delivery, after some sudden anomalous affections of sight and hearing for thirty or forty hours previously, she was seized with the most severe convulsions. Despite free evacuations, &c. &c., they continued to recur from time to time, and proved fatal in three hours; the patient during that time never being perfectly sensible. The pelvis of each kidney was filled with a whitish purulent-like matter, and its mucous lining membrane coated with large patches of adherent coagulable lymph, or false membrane. The ventricles of the brain were distended with serous fluid. The urine, when tested, presented no sign of albumen.

Case III.—In a third case, one fit of convulsions came on a month before delivery, and recurred again in a severe and fatal form fourteen days after confinement. During the intervening six weeks she was free from any symptoms. and the labour was natural. The last attack came on suddenly in the evening, about nine o'clock; the convulsions were again and again repeated, and she died comatose in eight hours.

Dr. Maclagan, Dr. Handyside, and Dr. Simpson had examined the urine during this last attack, but found in it no traces of albumen. On inspecting the body, some whitish turbid fluid was found in the renal pelvis, and could be pressed out abundantly from the renal papillæ. It looked like pus. On microscopic examination, it seemed to contain merely a very large quantity of epithelial cells, and no pus globules. Was this inflammatory? There was no effused fibrin or coagulable lymph.—*Monthly Journ. Med. Sci.*, Sept. 1847.

56. *Puerperal Neuritis in the Lower Extremities.*—Dr. Simpson directed the attention of the society to this as another not unfrequent, but neglected form of puerperal disease. He had seen several cases of it, and had found it mistaken for phlebitis and other forms of phlegmasia dolens. It was characterized often by numbness and tingling of the affected limb, and pain, fixed or remittent, passing along the crural or sciatic nerve, down to the knee, calf, or even the foot—increased by pressure along the course of the nerve, and by stretching of the limb, sometimes relieved by strong pressure on the highest portion of the nerves. Sometimes there was no co-existent œdema, or if it were present the pain was in a degree greatly disproportionate to the œdema. It was often very protracted in its course. After local leeching, an elevated position of the limb, the application of belladonna, aconite, &c., greatly relieved the patients.

Various members alluded to cases of this disease which they had seen.—*Ibid.*

57. *Internal Hemorrhage during Pregnancy.*—M. PLAINCHANT has communicated to the Academie de Médecine of Maulins, a case he met with in his practice of very unfrequent occurrence. A strong, healthy, although lymphatic woman, aged 47, the mother of several children, had arrived at the sixth month of her last pregnancy in her usual good health, when one evening she was attacked with pains in her loins and colic; a midwife was called in, who, on examination, found nothing to indicate an approaching miscarriage; the pains, however, became more frequent, she got fainting fits, the skin became cold, the pulse thready, and the patient sank calmly in five hours after the first attack. Nothing had escaped from the vagina. On examination after death, the uterus was found very large and firm; an incision was made into it, and the waters escaped without anything unusual being perceived; the child was well formed for a six months' fœtus; the umbilical cord was uninjured; the placenta was connected with the fundus uteri by a small part of its substance, but was separated to a large extent from it by a quantity of blood, to the amount of about 500 grammes (about 17 oz.) The uterus was very red at this part, but showed no lesion of its texture; two fibrous bodies, each the size of a large nut, were found implanted in the wall of the uterus of the right side.—*Prov. Med. and Surg. Journ.*, Nov. 17, from *Journ. de Méd. et de Chirurg.*

58. *Large Fibrous Tumours of the Uterus complicating Pregnancy and Parturition.*—Dr. SIMPSON, in a communication to the Edinburgh Obstetrical Society, stated reasons for believing that in the above case, the existing compound tumour was the common fibrous or fleshy tumour of the uterus. It was well known that fibrous tumours were very common organic changes in the unimpregnated uterus. He had seen several cases in which, when still small, they were found present, and showed themselves in the form of nodulated irregularities on the surface of the pregnant and puerperal uterus; so that they did not prevent conception. Further. he mentioned the particulars of three cases which he had met with, where fibrous tumours of a large size complicated pregnancy and parturition.

CASE I.—A patient, after being married for ten or twelve years without any issue, passed two menstrual periods. A very large pelvic tumour, which had been long present, began to increase in size. Dr. Simpson then saw her along with Mr. Dixon and Dr. Taylor. There was a very large hard fibrous tumour of the uterus, and low on the left side and in front, a soft elastic part, having much the character of a dropsical ovary. And it is well known, that fibrous tumours of the uterus and multilocular dropsy of the ovary sometimes co-exist; but Dr. Simpson knew no other kind of cystic collection ever existing along with fibrous uterine tumours. In this case, however, the soft fluctuating part was not the ovary, for it was situated *anteriorly* to the hard uterine tumour, whilst diseased ovaries lie *posteriorly* to the uterus. This led Dr. Simpson to suspect pregnancy, improbable as it otherwise was, and to hazard a diagnosis to that effect. It proved correct. The fœtal heart was heard about the fifth month, and pregnancy went on the full time. During labour, one portion of the tumour filled up so much of the brim of the pelvis, that the child required to be extracted by turning. It was still-born. The mother made a good recovery.

CASE II.—A patient applied to Dr. Simpson with a large pelvic tumour. She was suffering from dysuria, &c., and had not menstruated for three months. Dr. Simpson found the uterus retroverted, and an enormous fibrous tumour in the walls of the organ. The case was at this time seen by Dr. Renton, Dr. Ziegler, and others. The uterus was replaced by Dr. Simpson with difficulty, and some weeks subsequently the fœtus was expelled. About a year afterwards, the same patient again became pregnant and went to the full time. The labour was extremely tedious—a portion of the tumour diminishing the brim of the pelvis—and at last the child was expelled by the spontaneous efforts of the uterus, but with the head greatly compressed and flattened. The mother recovered rapidly. In the unimpregnated state, the fibrous tumour in this instance reaches to the umbilicus, and is as large as a uterus at the fifth or sixth month of pregnancy. The uterine cavity is found by the uterine sound to be six inches in length.

CASE III.—A patient, pregnant for the first time, who had been long delicate, arrived at the full term of utero-gestation, and after a somewhat tedious labour, was delivered of a dead child. There was a slight degree of hemorrhage, but it was easily arrested. From the time, however, of delivery onwards, the patient continued to sink—became faint and listless, and then comatose—and died in this state five or six hours subsequently. She seemed never to rally from the "shock" accompanying delivery. Dr. Malcolm saw her with Dr. Simpson. On opening the body, they found the uterine parietes thickly studded with fibrous tumours, and counted as many as forty hanging in a more or less pediculated form, from its external or peritoneal surface; and of all sizes, from an orange downwards. They were easily diagnosticated through the abdominal parietes during her life. The cavity of the uterus contained no collection of blood.

In addition, Dr. Simpson alluded to two cases of large fibrous tumours complicating labour, published in the *Dublin Medical Journal*, the one by Dr. Montgomery, the other by Dr. Beatty. In the former, the fibrous tumour having entered the pelvis, formed such an obstruction to the passage of the child that the Cæsarean section was required. In Dr. Beatty's case, it was supposed, before the commencement of the labour, that the same proceeding would be necessary; but, in the course of the labour, the tumour was gradually raised by the uterine contractions out of the pelvis, and the child spontaneously expelled.—*Proceedings of Edinburgh Obstetrical Society*, May 12th, in *Month. Journ. Med. Sci.*, Aug. 1847.

59. *What Practice should be followed in cases of large Fibrous Tumours complicating Pregnancy.*—Dr. Simpson adduced the opinion of Dr. Ashwell, who, in discoursing on this subject, inculcates the propriety of inducing premature labour in order to evade the danger of inflammation of the pelvic tissues and peritoneum, and the still more hazardous evils of unhealthy softening, suppuration and ulceration of the tumours themselves. But Dr. Simpson stated that he entertained very serious doubts of the correctness of the observation of Dr. Ashwell, that fibrous tumours had a tendency to soften during the latter months more than at any other period of pregnancy; and disapproved of the induction of premature labour as a general rule of treatment in such cases, believing, as he did, that the excitement of the uterus by artificial means to the premature expulsion of its contents, would be as likely to induce such anticipated morbid actions, as the supervention and completion of a natural pregnancy and labour. He believed, that the only cases of this kind which demanded the induction of premature labour were those in which the tumour encroached upon the brim of the pelvis, and thus produced such contraction of the maternal passages as rendered a natural labour impossible.—*Ibid.*

60. *Treatment of Fibrous Tumours in the Unimpregnated Uterus.*—Dr. Simpson called attention to the manner in which nature sometimes proceeds to stop the progress of these tumours; namely, by the gradual transformation of their fibrous tissue, firstly, into a cartilaginous and then into an earthy and almost inorganic mass, not prone to enlarge or change its condition. He stated, that this alteration seemed to indicate the death, or at least the cessation of the reproductive action of those cells which form the essential growing constituent of the tumour. He cited, in illustration, the analogous case of some entozoa, particularly the *trichina* and *cysticercus*, which, after their death, were sometimes found, with their containing cysts, ossified. Further, Dr. Simpson mentioned the interesting experiments of Rayer, in which that pathologist induced the artificial transformation of normal fibrous tissue (such as the ear of the rabbit), into cartilaginous and osseous substance by the repeated or continued irritation of it. And, as a result of these remarks, Dr. Simpson suggested the possible induction of osseous transformation as an indication of treatment in fibrous uterine tumours. He thought that the repeated transmission of a galvanic current through the tumour might possibly produce the required degree of irritation and its desired result.—*Ibid.*

61. *Abdominal Tumour Simulating Pregnancy.*—[The following very remarkable case is related by M. Challice, (*Lancet*, Oct. 16, 1847,) and affords another illustration of the necessity of caution in pronouncing in regard to the existence of pregnancy. The use of the stethoscope would have prevented the mistake made in this instance.]

On the morning of the 12th of August, 1846, a messenger came to me, breathless, saying that her mistress's daughter was dangerously ill with the cholera, and that I must come directly. On my way the maid-servant dropped several hints, at first rather obscure, afterwards of a less doubtful character. "She hoped it was nothing worse than the cholera;" and persons who had their living to get "could see, although they daren't say nothing." These innuendoes, conveyed in a tone and manner not to be mistaken, led me to the conclusion, that on my arrival I should find the patient in the pangs of parturition. When I arrived, I saw a young female in bed, lying on her right side, with her face buried in the pillow, and the knees drawn up towards the abdomen. She seemed to be in pain, but was sullen, and refused to answer any questions. The mother told me that she had been vomiting, and complaining of pains in the loins, with a constant desire to pass water, and that for the last five or six months she had observed a change in her daughter—the appetite capricious, temper irritable, and on several occasions she had been surprised in tears; notwithstanding, she denied being ill, and continued to perform her domestic duties. These facts seemed confirmatory of the servant's suspicions, and with almost a conviction in my mind of the condition of the girl, I placed my hand upon the abdomen: it was tense and swollen, and a movement like that of a living fœtus was distinctly felt: I then listened and detected a loud and quick pulsation.

The presence of these symptoms induced me to pronounce the patient pregnant. No suspicion had entered the mother's mind: she was an only daughter, and bore an excellent character. However, she did not deny the fact, but after a distressing burst of grief, and a pitiable appeal for forgiveness, she confessed that her "Cousin John had had connexion with her once, and only once, about six months before, a few days previous to his departure from England." Being unwilling to aggravate the sufferings I then witnessed, by what appeared unnecessary inquiries, or to disturb the patient by further and more careful examination, considering the case quite decisive, I contented myself with prescribing some simple remedy for relieving the sickness and pain. The next day there was a great improvement in the condition of the patient; the fear of discovery no longer agitated her, and she had been forgiven. Up to this period she had so contrived to compress her figure, that no increase in her bulk was perceptible when dressed, although her size was quite that of the sixth month of gestation when undressed. Now that this cruel mental and physical restraint no longer tormented her, she suffered less from pain and sickness, became less sullen, and more communicative.

It appears that the connection took place, after prolonged resistance, just previous to the usual period of menstruation; that up to that time there had never been the least irregularity of this function during the three years she had menstruated.

She was greatly alarmed at the absence of the accustomed appearances at the usual time, and did not feel well in health, although she had no marked symptoms; a general sense of uneasiness, with pains in the loins, and an occasional slight feeling of sickness and loss of appetite, were felt. When the next period came round, she was pleased at finding herself "unwell," but only to about half the usual extent; menstruation had continued regularly up to the time I saw her; on each occasion, however, more and more scantily. The abdomen had gone on gradually increasing in bulk, and about five months after the connection the patient was conscious of a movement and pulsation in the abdomen, and believed herself pregnant. The breasts were small, and marked with an indistinct areola; around the eyes and mouth there were dark circles, and her mother says she is much fallen away in flesh. Previous to this unfortunate occurrence, the patient not only enjoyed good health, but was remarkable for strength, endurance, and activity, inclined to *embonpoint*, full of life and spirits, and in her nineteenth year.

During the next month or six weeks, I saw the patient occasionally. She complained of no urgent symptom, walked out now and then, had a good appetite and digestion, with sometimes slight irritability of the bladder, and irregularity of the bowels. The gradual increase in size still went on, and the mother (who now slept with her daughter) said that the movement of the child continued. The patient complained of its violence when in bed, and also began to suffer from lumbar pains, and constant irritation of the labia, which was much increased when she drank beer, wine, or spirits. And so the case went on.

When the ninth calendar month had nearly expired since the connection, I became much interested in the case, thinking it one in which the period of gestation could be accurately ascertained.

On the evening of the expiration of the ninth month, I received the expected message, with an urgent request to hasten, as very strong labour had come on. When I arrived the patient was standing at the foot of the bed, grasping the bed post, and evidently suffering from pain, although not of a violent character. There was an interval of about ten minutes in the pains, during which she walked about the room, having a very anxious and haggard look.

After a good deal of persuasion, she consented to an examination per vaginam, which seemed to cause excessive pain, as she screamed violently, and exclaimed that she was being murdered. At the time, I thought the patient hysterical, but was much surprised at the narrow, constricted condition of the vagina, and the presence of the hymen nearly perfect; the agony, however, produced by the examination, seemed so intolerable, that the patient, by a sudden and violent effort, threw herself from me, declaring that I should torment her no more.

Finding that the pains were weak and ineffectual, and at longer intervals, and feeling assured, from the condition of the parts, that immediate labour was not at hand, I gave twenty minims of opium, and left, directing a full dose of castor oil to be given in a few hours. During the night she slept well; the oil acted freely in the morning; and the next day passed over without pain or any inconvenience, the patient having a good appetite, and being in better spirits. About eleven o'clock at night the pains returned with increased violence, and I found her straining and bearing-down at the bed post. An old-experienced nurse declared "that the pains were quite strong enough, with *assistance*, to bring the child into the world." The mother states, that during the night she had placed her hand on her daughter's stomach, and felt the child move vigorously.

In the intervals of pain, the patient walked about the room, and was cheerful, except expressing what seemed an unreasonable horror at any examination. The pains commenced in the abdomen, and then extended round to the loins, came on regularly every ten or fifteen minutes, and were marked with all the characteristics of labour in its first stage.

The extreme excitement and dread which the patient evinced, when the necessity for an examination was impressed upon her, induced me to waive it, although I was anxious to ascertain the real condition of affairs. It would be useless to detail the diurnal symptoms—suffice it, that a week passed over, and matters remained apparently without alteration, either one way or the other. I may here state, that menstruation did not take place at this period. Doubts now first began to arise in my mind about the nature of the case, and when nine calendar months from the departure of her cousin had expired, I became very anxious about it. It was at this stage, that Dr. Lever was consulted. After a careful and thorough external and internal examination, this gentleman, justly famous for his skill and tact in diagnosis, having the history of the case before him, came to the conclusion that it was "extra-uterine impregnation." At that time her physical condition was as follows:—Countenance pale—an anxious expression; eyes rather sunken; nose pinched; breasts somewhat flaccid; abdomen the size of mature pregnancy, if not larger; pulse never less than 100; the tongue clean, but morbidly red; bowels sometimes costive for a day or two, at other times, the reverse; urine most frequently pale and copious, but on some occasions thick, scanty, and high-coloured. Over the entire abdominal region, a distinct pulsation could be heard and felt; but owing to the extreme excitability of the patient, it was almost impossible to ascertain whether or not it was synchronous with the pulse. Palliative measures were adopted, and the case, now becoming one of painful interest, was closely watched. During the next fortnight, no perceptible alteration occurred, except that the pulsation in the tumour became less distinct, and the abdomen more tense. Dr. Ferguson now visited the patient, and pronounced the abdominal pulsation to be synchronous with the heart's action, and doubted whether impregnation had taken place at all. On his recommendation, I punctured the abdomen with a fine "trochar," and drew off about five pints of thick grumous and offensive matter. Great relief followed the operation, only, however, temporary; for in the course of a short time, the abdomen became as tense as before, and all the patient's sufferings returned. The interest, in a further detail of the symptoms of this case, here ceases, no doubt now being entertained of its character. After a second and a third tapping, the poor girl gradually got weaker and weaker, her only comfort the oblivion produced by anodynes; and on the 15th of February she died.

The day following, assisted by my friend, Mr. Druitt, we made a post-mortem examination. The upper portion of the body was extremely emaciated, but, owing to slight œdema of the lower extremities, this appearance was not general. Abdomen greatly distended, and marked by enlarged veins; it measured in circumference fifty-eight inches. About a gallon of fluid was drawn off by the trochar, previous to making a free incision, after which, nearly a pailful of brain-like matter rolled out. This had been contained in a cyst, which extended from the pubis to the ensiform cartilage, and from the left to the right hypochondrium; in some parts, the walls of the sac were more than an inch thick, and of a fibro-cartilaginous consistence; the anterior portion adhered firmly to the abdominal parietes, the upper being formed by the inferior surface of the liver; that organ was bathed with the contents of the sac, and became inoculated, several small cysts, filled with medullary sarcoma, having formed in its substance. There were, also, many isolated cysts, varying from the size of a hazelnut, to that of a pigeon's egg, formed in the walls of the cyst; these had no connection with each other, or communication with the general cavity. The uterus was found imbedded in the lower portion, or base of the cyst; no trace of the ovaries could be met with; the bladder was small, but not affected by disease.

62. *Use of Auscultation in the Treatment of Labours.*—The *Dublin Quarterly Journ. of Med. Sci.* for August last, contains an interesting memoir on this subject, by Dr. M'Clintock, the materials for which were collected by him in the wards of the Dublin Lying-in Hospital, whilst he was assistant in that institution. The following aphorisms contain the chief points of practical interest contained in this memoir.

1. Where the fœtus is alive, the sounds of its heart may be always detected at some period of the labour, by any one of ordinary proficiency in obstetric auscultation.

2. The precise region of the abdomen in which the fœtal heart is heard, affords auxiliary evidence of the position of the child in *utero*, but can never be relied on alone for determining this point, or supersede the necessity for vaginal examination.

3. In presentations of the lower extremities, whether it be breech, foot, or knee, the fœtal heart is usually heard most distinctly in the vicinity of the umbilicus of the mother.

4. Conclusive auricular evidence of the existence of twins *in utero* is only to be drawn from the inequality in the number of the beats of the two fœtal hearts, and not merely from any difference as to their respective positions.

5. If, in the course of a tedious or difficult labour, the fœtal cardiac sounds, from having been distinct and clear, gradually become feeble and obscure, and ultimately inaudible, even with every precaution against deception; under these circumstances, their absence is entitled to rank as positive evidence of the child's death; but without the previous successive examinations this conclusion would be destitute of any positive character.

6. In cases where ergot of rye has been given to hasten delivery, ausculation of the fœtal heart is the only certain way by which we can know when the medicine is commencing to exert an injurious influence upon the child; consequently, the stethoscopic indications are alone entitled to confidence for determining the exact time when the state of the fœtus calls for, and justifies interference.

7. In cases simulating rupture of the uterus, the persistence of the fœtal heart's sound is a strong proof against the occurrence of the accident, and the more advanced the period at which they are audible after the setting in of bad symptoms, the more conclusive is the evidence that rupture has not taken place; whilst, on the other hand, the sudden cessation of the fœtal pulsations, where they had been distinctly audible a short time previously, would strongly corroborate other existing symptoms of laceration of the uterus.

8. After an attack of puerperal convulsions in the seventh or eighth month of

pregnancy, where labour has not immediately supervened, the prognosis should be very much regulated by the state of the fœtus; for if it be proved by the stethoscope that the child is alive, we may venture to hope that gestation will go on undisturbed (unless the convulsions recur); whereas, if the child has been destroyed, its expulsion will take place, most probably, in ten or fourteen days from the date of the convulsive attack.

9. No certain conclusion regarding the state of the fœtus can be drawn from the characters of the placental soufflet.

10. In cases of flooding before delivery, observation of the placental bruit may supply useful diagnostic information, by pointing out the part of the uterus to which the after-birth is attached, and thereby showing whether the hemorrhage be accidental or unavoidable.

11. Auscultation of the heart in still-born children more accurately acquaints us with the state of the child's vital powers, than any other source of information, and is, therefore, well deserving of employment in all such cases.

63. *Spontaneous Rupture of the Uterus from thinness of the Parietes.*—Mrs. —— was taken in a labour, I believe at her full time. The labour appeared to be going on naturally, when suddenly symptoms of great depression occurred, accompanied with vomiting and extreme tenderness of the abdomen, and the patient sunk rapidly, dying a few hours after the first accession of the dangerous symptoms. On examination after death, there did not appear to be any malformation of the pelvis, or disproportionate size of the child. She had borne several children, and her labours had been natural, though rather lingering. The cause of the rupture appeared to be, that one-half of the uterus, as the fœtus increased in size, merely dilated, but did not increase in thickness as it should have done, so that whilst the cavity of the uterus was of the size it ought to have been in pregnancy, the substance of the walls of one-half was little thicker than brown paper, the substance of the other half being of the proper thickness. It appeared, therefore, when labour came on, that the part of the uterus which was thus preternaturally alienated had been unable to resist the tension, and had given way. Nothing was discovered to account for this want of nutrition. The patient had generally enjoyed tolerable health. The true nature of the case, though suspected, was not ascertained till after death.—*Lond. Med. Gaz.*, Oct. 1847.

64. *A new method of bringing on Premature Delivery.*—The German journals contain the account of a new method of inducing premature labour, where required, as practised by M. Cohen, of Hamburg. That physician has been led to employ the subjoined method from noticing the power of injections into the uterus, in developing contractions of that organ; and as the pregnant uterus is in a condition apt to contract, he thought injections might be efficaciously used, and that without danger, to bring on delivery, in those cases where it is necessary the fœtus should be expelled before the full term of pregnancy.

In the carrying out of his plan, M. Cohen has used a common small syringe, holding from one ounce and a half to two ounces of liquid, and furnished with a canula eight or nine inches in length, about one-eighth of an inch in diameter at its extremity, and curved like a female catheter. The patient is placed on her back, and the pelvis slightly raised. Two fingers are then passed into the vagina as far as the posterior lip of the uterus, in order to guide the canula, which is introduced between the anterior wall of the uterus and the ovum. The free extremity of the syringe is now lowered so as to allow the canula to glide under the pubic arch until it penetrates about two inches into the uterus, and at this point the injection is begun. The fluid is injected slowly and gently, taking care so to raise the syringe that the extremity of the canula may not abut against the wall of the uterus, and to vary its direction whenever any obstacle occurs to the escape of the liquid; the syringe is also withdrawn by degrees. Ten minutes afterwards, the woman may get up and walk about. If at the end of six hours there is no sign of approaching labour, the operation may be repeated.

Dr. Cohen has used for injection tar-water, which fluid he has also employed to diminish excessive secretion from the uterine surface. The author gives a case in which he resorted to this plan of injecting with success, it was one of contracted pelvis—contracted in all its diameters, and hardly equal in size to that of a young girl twelve years old. This woman's first delivery was accomplished by craniotomy and the forceps; and M. Cohen advised, in the case of a second pregnancy, to induce premature labour, which was accordingly done by him, when the woman was the next time with child, according to the preceding plan, and after two injections were performed, at an interval of six hours. The child was born footling, and survived; and the mother had a very favourable convalescence.

The preceding plan appears to possess the advantage of inducing labour so gradually as to allow of the dilatation of the os uteri before the bursting of the membranes, and the forcing against it of the harder presenting part. Most of the methods now employed to bring on labour are apt to cause very sudden and violent contractions, with the almost immediate rupture of the membranes, which is a disadvantage; and therefore, if no objection seem to attach to the proceeding of M. Cohen, it would be preferable. It has this disadvantage, that it is not so simple of execution as the mere introduction of a catheter to rupture the membranes, or to separate them from the walls of the uterus.—*Lancet*, Sept. 25, 1847.

ANÆSTHETIC AGENTS.

[In our last number we presented a fair and unbiassed report of the then existing state of knowledge in regard to the use of ether as a means of annulling pain, in order to enable the reader to judge how far the use of this agent was safe or expedient. We shall now, in furtherance of the same object, endeavour to bring together the prominent facts and opinions which have since been brought forward. Previously, however, to doing this, we must give an account of a new anæsthetic agent, very recently proposed by Prof. Simpson, of Edinburgh, as a substitute for the sulphuric ether, and which is now lauded as very superior to the latter in several respects. The discovery, in this country, of the property of ether of annulling pain, has given an impulse to investigation in that direction, and other articles may be hereafter discovered, possessing anæsthetic powers superior to any yet known. Even, however, should this happen and the ether be entirely superseded by another more efficient and safer agent, still, a large portion of honour must be awarded to our countrymen, for having stricken out the path which has led to the discovery.]

65. *Account of a new Anæsthetic Agent, as a Substitute for Sulphuric Ether in Surgery and Midwifery.* By J. Y. Simpson, M. D., F. R. S. E., Prof. Mid. Univ. Edinburgh, &c. (Communicated to the Med.-Chirurg. Soc. of Edinburgh, Nov. 10, 1847.) [Just as we were closing this number we received from the author a copy of the following paper, which we hasten to present entire to our readers.]

From the time at which I first saw ether-inhalation successfully practised in January last, I have had the conviction impressed upon my mind, that we would ultimately find that other therapeutic agents were capable of being introduced with equal rapidity and success into the system, through the same extensive and powerful channel of pulmonary absorption. In some observations which I wrote and published in February last, relative to the inhalation of sulphuric ether in midwifery, I stated that, in several obstetric cases, I had used ergot of rye in this way, along with ether.—(See *Monthly Journal of Medical Science*, pp. 724 and 795. Case of Successful Inhalation of Opium, to Arrest the Vomiting of Pregnancy.)

With various professional friends, more conversant with chemistry than I am, I have, since that time, taken opportunities of talking over the idea which I entertained of the probable existence or discovery of new therapeutic agents, capable of being introduced into the system by respiration, and the possibility of producing for inhalation vaporizable or volatile preparations of some of our more active and old established medicines: and I have had, during the summer and autumn, ethereal tinctures, &c., of several potent drugs, manufactured for me, for experiment, by Messrs. Duncan, Flockhart, & Co., the excellent chemists and druggists of this city.

Latterly, in order to avoid, if possible, some of the inconveniences and objections pertaining to sulphuric ether,—(particularly its disagreeable and very persistent smell, its occasional tendency to irritation of the bronchi during its first inspirations, and the large quantity of it occasionally required to be used, more especially in protracted cases of labour,)—I have tried upon myself and others the inhalation of different other volatile fluids, with the hope that some one of them might be found to possess the advantages of ether, without its disadvantages. For this purpose, I selected for experiment, and have inhaled several chemical liquids of a more fragrant or agreeable odour, such as the chloride of hydrocarbon (or Dutch liquid), acetone, nitrate of oxide of ethyle (nitric ether), benzoin, the vapour of iodoform, &c.* I have found, however, one infinitely more efficacious than any of the others, viz., chloroform, or the perchloride of formyl, and I am enabled to speak most confidently of its superior anæsthetic properties, having now tried it upon upwards of thirty individuals. The liquid I have used has been manufactured for me by Mr. Hunter, in the laboratory of Messrs. Duncan, Flockhart & Co.

Chloroform was first discovered and described at nearly the same time by Soubeiran (1831), and Liebig (1832); its composition was first accurately ascertained by the distinguished French chemist, Dumas, in 1835.—See the *Annales de Chimie et de Physique*, vols. xlviii., xlix., and lviii. It has been used by some practitioners internally; Guillot prescribed it as an anti-spasmodic in asthma, exhibiting it in small doses, and diluted 100 times. (See Bouchardat's *Annuaire de Therapeutique*, for 1844, p. 35.) But no person, so far as I am aware, has used it by inhalation, or discovered its remarkable anæsthetic properties till the date of my own experiments.

It is a dense, limpid, colourless liquid, readily evaporating, and possessing an agreeable, fragrant, fruit-like odour, and a saccharine pleasant taste.

As an inhaled anæsthetic agent, it possesses over sulphuric ether the following advantages:—

1. A greatly less quantity of chloroform than of ether is requisite to produce the anæsthetic effect; usually from a hundred to a hundred and twenty drops of chloroform only being sufficient; and with some patients much less. I have seen a strong person rendered completely insensible by six or seven inspirations of thirty drops of the liquid.

2. Its action is much more rapid and complete, and generally more persistent. I have almost always seen from ten to twenty full inspirations suffice. Hence the time of the surgeon is saved; and that preliminary stage of excitement, which pertains to all narcotizing agents, being curtailed, or indeed practically abolished, the patient has not the same degree of tendency to exhilaration and talking.†

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* In talking over, with different chemists, what fluids might be sufficiently volatile to be respirable, and hence deserving of being experimented upon, Mr. Waldie first named to me the perchloride of formyl as worthy, among others, of a trial;—Dr. Gregory suggested a trial of the chloride of hydrocarbon, &c. I have been deeply indebted to Dr. Gregory and Dr. Anderson, for their kindness in furnishing me with the requisite chemical agents for these experiments;—and also to my assistants, Dr. Keith and Dr. Duncan, for the great and hearty zeal with which they have constantly aided me in conducting the inquiry.

† In practice I have found that any such tendency, even with ether, is avoided by, 1st, giving the patient from the first a large and overwhelming dose of the vapour, and 2dly, by keeping him perfectly quiet and still, and preventing all noise and talking around him. I have elsewhere insisted on the importance of these points. (See the numbers of the *Monthly Journal of Medical Science*, for March, 1847, p. 726, and for September, p. 154.) In the paper last referred to, I took occasion, when discussing the conditions requisite for insuring successful etherization, to observe, "*First*, The patient ought to be left, as far as possible, in a state of absolute quietude and freedom from mental excitement, both during the induction of etherization, and during his recovery from it. All talking and all questioning should be strictly prohibited. In this way any tendency to excitement is eschewed, and the proper effect of the ether inhalation more speedily and certainly induced. And, *Secondly*, with the same view, the primary stage of exhilaration should be entirely avoided, or at least reduced to the shortest possible limit, by impregnating the respired air as fully with the ether vapour as the patient can bear, and by

3. Most of those who know from previous experience the sensations produced by ether inhalation, and who have subsequently breathed the chloroform, have strongly declared the inhalation and influence of chloroform to be far more agreeable and pleasant than those of ether.

4. I believe, that considering the small quantity requisite, as compared with ether, the use of chloroform will be less expensive than that of ether; more especially, as there is every prospect that the means of forming it may be simplified and cheapened.

5. Its perfume is not unpleasant, but the reverse; and the odour of it does not remain, for any length of time, obstinately attached to the clothes of the attendant,—or exhaling in a disagreeable form from the lungs of the patient, as so generally happens with sulphuric ether.

6. Being required in much less quantity, it is much more portable and transmissible than sulphuric ether.

7. No special kind of inhaler or instrument is necessary for its exhibition. A little of the liquid diffused upon the interior of a hollow-shaped sponge, or a pocket-handkerchief, or a piece of linen or paper, and held over the mouth and nostrils, so as to be fully inhaled, generally suffices in about a minute or two to produce the desired effect.*

I have not yet had an opportunity of using chloroform in any capital surgical operation, but have exhibited it, with perfect success, in tooth-drawing,† opening abscesses, for annulling the pain of dysmenorrhœa and of neuralgia, and in two or three cases where I was using deep and otherwise very painful galvano-puncture for the treatment of ovarian dropsy, &c. I have employed it also in obstetric

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allowing it to pass into the lungs both by the mouth and nostrils, so as rapidly and at once to superinduce its complete and anæsthetic effect; * * * * a very common but certainly a very unpardonable error being to exhibit an imperfect and exciting, instead of a perfect and narcotizing dose of the vapour. Many of the alleged failures and misadventures are doubtless entirely attributable to the neglect of this simple rule;—not the principle of etherization, but the mode of putting it in practice being altogether to blame. But, *Thirdly*, whatever means or mode of etherization is adopted, the most important of the conditions required for procuring a satisfactory and successful result from its employment in surgery, consists in obstinately determining to avoid the commencement of the operation itself, and never venturing to apply the knife *until* the patient is under the full influence of the ether-vapour, and *thoroughly and indubitably soporized by it.*" In fulfilling all these indications, the employment of chloroform evidently offers great and decided advantages, in facility and efficiency, over the employment of ether.

* When used for surgical purposes, perhaps it will be found to be most easily given upon a hankerchief, gathered up into a cup-like form in the hand of the exhibitor, and with the open end of the cup placed over the nose and mouth of the patient. For the first inspiration or two, it should be held at the distance of half an inch or so from the face and then more and more closely applied to it. To insure a rapid and perfect anæsthetic effect—more especially where the operation is to be severe—one or two teaspoonfuls of the chloroform should be at once placed upon the hollow of the hankerchief, and immediately held to the face of the patient. Generally a snoring sleep speedily supervenes; and when it does so, it is a perfect test of the superinduction of complete insensibility. But a patient may be quite anæsthetic without this symptom supervening.

† A young dentist who has himself had two teeth extracted lately—one under the influence of ether, and the other under the influence of chloroform—writes me the following statement of the results:—"About six months ago I had an upper molar tooth extracted whilst under the influence of ether, by Mr. Imlach. The inhalation was continued for several minutes before I presented the usual appearance of complete etherization; the tooth was then extracted; and, although I did not feel the least pain, yet I was conscious of the operation being performed, and was quite aware when the crash took place. Some days ago I required another molar extracted on account of tooth-ache, and this operation was again performed by the same gentleman. I inhaled the vapour of chloroform, half a drachm being poured upon a handkerchief for that purpose, and held to my nose and mouth. Insensibility took place in a few seconds; but I was so completely *dead* this time, that I was not in the very slightest degree aware of anything that took place. The subsequent stupefying effects of the chloroform went off more rapidly than those of the ether; and I was perfectly well and able again for my work in a few minutes."

practice with entire success. The lady to whom it was first exhibited during parturition, had been previously delivered in the country by perforation of the head of the infant, after a labour of three days' duration. In this, her second confinement, pains supervened a fortnight before the full time. Three hours and a-half after they commenced, and, ere the first stage of the labour was completed, I placed her under the influence of the chloroform, by moistening, with half a tea-spoonful of the liquid, a pocket handkerchief, rolled up into a funnel shape, and with the broad or open end of the funnel placed over her mouth and nostrils. In consequence of the evaporation of the fluid, it was once more renewed in about ten or twelve minutes. The child was expelled in about twenty-five minutes after the inhalation was begun. The mother subsequently remained longer soporose than commonly happens after ether. The squalling of the child did not, as usual, rouse her; and some minutes elapsed after the placenta was expelled, and after the child was removed by the nurse into another room, before the patient awoke. She then turned round and observed to me that she had "enjoyed a very comfortable sleep, and indeed required it, as she was so tired,* but would now be more able for the work before her." I evaded entering into conversation with her, believing, as I have already stated, that the most complete possible quietude forms one of the principal secrets for the successful employment of either ether or chloroform. In a little time she again remarked that she was afraid her "sleep had stopped the pains." Shortly afterwards, her infant was brought in by the nurse from the adjoining room, and it was a matter of no small difficulty to convince the astonished mother that the labour was entirely over, and that the child presented to her was really her "own living baby."

Perhaps I may be excused from adding, that since publishing on the subject of ether inhalation in midwifery, seven or eight months ago,† and then for the first time directing the attention of the medical profession to its great use and importance in natural and morbid parturition, I have employed it, with few and rare exceptions, in every case of labour that I have attended; and with the most delightful results. And I have no doubt whatever, that some years hence the practice will be general. Obstetricians may oppose it, but I believe our patients themselves will force the use of it upon the profession.‡ I have never had the pleasure of watching over a series of better and more rapid recoveries; nor once witnessed any disagreeable result follow to either mother or child; whilst I have now seen an immense amount of maternal pain and agony saved by its employment. And I most conscientiously believe that the proud mission of the physician is distinctly twofold—namely, to alleviate human suffering, as well as preserve human life.

Chemical Constitution of Chloroform.—Formyl is the hypothetical radical of formic acid. In the red ant (*formica rufa*) formic acid was first discovered, and hence its name. Gehlen pointed it out as a peculiar acid; and it was afterwards first artificially prepared by Doebereiner. Chemists have now devised a variety of processes, by which formic acid may be obtained from starch, sugar, and indeed, most other vegetable substances.

A series of chlorides of formyl are produced when chlorine and the hyperchlorites are brought to act on the chloride, oxide, and hydrated oxide of methyl, pyroxylic or wood spirit). In the same way as formic acid may be artificially procured from substances which do not contain formyl ready formed,—so also are the chlorides of this radical capable of being procured from substances which do not originally contain it.

Chloroform, chloroformyl, or the perchloride of formyl, may be made and obtained artificially by various processes,—as by making milk of lime, or an aqueous solution of caustic alkali act upon chloral,—by distilling alcohol. pyroxylic spirit, or acetone, with chloride of lime,—by leading a stream of chlorine gas into a solution of caustic potass in spirit of wine, &c. The preparation which I have employed, was made according to the following formula of Dumas:—

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* In consequence of extreme anxiety at the unfortunate result of her previous confinement, she had slept little or none for one or two nights preceding the commencement of her present accouchement.

† See *Monthly Journal of Medical Science*, for February, p. 639; for March, p. 718 and 721; and April, p. 794, &c.

‡ I am told that the London physicians, with two or three exceptions only, have never yet employed ether inhalation in their midwifery practice. Three weeks ago, I was informed in a letter from Professor Montgomery, of Dublin, that he believed that in that city, up to that date, it had not been used in a single case of labour.

" ℞.—Chloride of lime in powder, ...	℔iv.
Water, ...	℔xii.
Rectified Spirit	f℥xii.

"Mix in a capacious retort or still, and distill as long as a dense liquid, which sinks in the water with which it comes over, is produced."—(Gray's *Supplement to the Pharmacopœia*, 1846, p. 633.)

The resulting perchloride of formyl consists of two atoms of carbon, one of hydrogen, and three of chlorine. Its specific gravity is much greater than that of water, being as high as 1·480. It boils at 141°. The density of its vapour is 4·2. It is not inflammable; nor changed by distillation with potassium, potash, sulphuric, or other acids.—(See Turner's *Elements of Chemistry*. 8th edition. p. 1009; Gregory's *Outlines of Chemistry*, part ii. p. 401; Fownes' *Manual of Elementary Chemistry*, p. 419; Thomson's *Chemistry of Organic Bodies*, p. 312; Loewig's *Organische Chemie*, vol. i. p 498.)

It is now well ascertained that three compound chemical bodies possess, when inhaled into the lungs, the power of superinducing a state of anæsthesia, or insensibility to pain in surgical operations, &c., namely, nitrous oxide, sulphuric ether, and perchloride of formyl. The following tabular view shows that these agents are entirely different from each other in their chemical constitution, and hence that their elementary composition affords no apparent clue to the explanation of their anæsthetic properties:—

	Propor of Nitrogen.	Propor. of Oxygen.	Propor. of Carbon.	Propor of Hydrogen.	Propor of Chlorine.
Nitrous Oxide,	1 Atom.	1 Atom.			
Sulphuric Ether,		1 Atom.	4 Atoms.	5 Atoms.	
Chloroform,			2 Atoms.	1 Atom.	3 Atoms.

It is perhaps not unworthy of remark, that when Soubeiran, Liebig, and Dumas engaged, a few years back, in those inquiries and experiments by which the formation and composition of chloroform was first discovered, their sole and only object was the investigation of a point in philosophical Chemistry. They laboured for the pure love and extension of knowledge. They had no idea that the substance to which they called the attention of their chemical brethren could or would be turned to any *practical* purpose, or that it possessed any physiological or therapeutic effects upon the animal economy. I mention this to show, that the *cui bono* argument against philosophical investigations, on the ground that there may be at first, no apparent practical benefit to be derived from them, has been amply refuted in this, as it has been in many other instances. For I feel assured, that the use of chloroform will soon entirely supersede the use of ether; and, from the facility and rapidity of its exhibition, it will be employed as an anæsthetic agent in many cases, and under many circumstances, in which ether would never have been had recourse to. Here, then, we have a substance which, in the first instance, was merely interesting as a matter of scientific curiosity and research, becoming rapidly an object of intense importance, as an agent by which human suffering and agony may be annulled and abolished, under some of the most trying circumstances in which human nature is ever placed.

Postscript.—Since the above observations were sent to the press, I have—through the great kindness of Professor Miller and Dr. Duncan—had an opportunity of trying the effects of the inhalation of chloroform, to-day, in three cases of operation in the Royal Infirmary of Edinburgh. A great collection of professional gentlemen and students witnessed the results, and among the number was Professor Dumas of Paris, the chemist who first ascertained and established the chemical composition of chloroform. He happened to be passing through Edinburgh, engaged along with Dr. Milne Edwards, who accompanied him, in an official investigation for the French Government,—and was, in no small degree, rejoiced to witness the wonderful physiological effects of a substance with whose chemical history his own name was so intimately connected.

I append notes, obligingly furnished to me by Professor Miller and Dr. Duncan, of the three cases of operation. The two first cases were operated on by Professor Miller: the third by Dr. Duncan. In applying the chloroform in the first case, I used a pocket-handkerchief as the inhaling instrument; in the two last I employed a hollow sponge.

Case I.—"A boy, four or five years old, with necrosis of one of the bones of the forearm. Could speak nothing but Gaelic. No means, consequently, of explaining to him what he was required to do. On holding a handkerchief, on which some chloroform had been sprinkled, to his face, he became frightened, and wrestled to be away. He was held gently, however, by Dr. Simpson, and obliged to inhale. After a few inspirations he ceased to cry or move, and fell into a sound snoring sleep. A deep incision was now made down to the diseased bone; and, by the use of the forceps, nearly the whole of the radius, in the state of sequestrum, was extracted. During this operation, and the subsequent examination of the wound by the finger, not the slightest evidence of the suffering of pain was given. He still slept on soundly, and was carried back to his ward in that state. Half an hour afterwards, he was found in bed, like a child newly awakened from a refreshing sleep, with a clear, merry eye, and placid expression of countenance, wholly unlike what is found to obtain after ordinary etherization. On being questioned by a Gaelic interpreter who was found among the students, he stated that he had never felt any pain, and that he felt none now. On being shown his wounded arm, he looked much surprised, but neither cried nor otherwise expressed the slightest alarm."

Case II.—"A soldier who had an opening in the cheek—the result of exfoliation of the jaw—was next made to inhale. At first he showed some signs of moving his hands too freely; but soon, also, fell into a state of sleep and snoring. A free incision was made across the lower jaw, and from this the dense adhering integuments were freely dissected all round, so as to raise the soft parts of the cheek. The edges of the opening were then made raw, and the whole line of incision was brought together by several points of suture. This patient had previously undergone two minor operations of a somewhat similar kind; both of them had proved unsuccessful, and he bore them very ill—proving unusually unsteady, and complaining bitterly of severe pain. On the present occasion, he did not wince or moan in the slightest degree; and, on the return of consciousness, said that he had felt nothing. His first act, when apparently about half awake, was suddenly to clutch up the sponge with which the chloroform was used, and re-adjust it to his mouth, obviously implying that he had found the inhalation from it, anything but a disagreeable duty.

"This case was further interesting as being one of those operations in the region of the mouth, in which it has been deemed impossible to use ether,—and certainly it would have been impossible to have performed the operation with any complicated inhaling apparatus applied to the mouth of the patient."

Case III.—"A young man of about twenty-two years of age, having necrosis of the first phalanx of the great toe, and ulceration of the integuments, the consequence of injury. The ulcerated surface was exceedingly tender to the touch—so much so, that he winced whenever the finger was brought near to it; and the slightest pressure made him cry out. After the removal of the dressings, which caused some pain and fretting, the inhalation was commenced, and the patient almost immediately* became insensible, and lay perfectly still, while the diseased mass was being removed by amputation of the toe through the middle of the second phalanx. The inhalation was now stopped. The edges of the wound were then brought together with three stitches, and the wound dressed. The patient shortly afterwards awoke, looked round him, and gratefully declared his entire and perfect freedom from all pain and uneasiness during the operation."

The whole quantity of chloroform used in these three operations did not exceed half an ounce,—and, as Professor Miller afterwards observed to the students that were present, if ether had been used, several ounces of it would have been requisite to produce the same amount of anæsthetic effect.

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* Dr. Christison, who was watching the result, informs me that this patient was affected in half a minute.

The following case occurred also to-day, to Mr. Miller, in private practice. The notes of it and the subsequent remarks are in his own words.

Case IV.—"A young lady wished to have a tumour (encysted) dissected out from beneath the angle of the jaw. The chloroform was used in small quantity (about a drachm), sprinkled upon a piece of operation sponge. In considerably less than a minute she was sound asleep, sitting easily in a chair, with her eyes shut, and with her ordinary expression of countenance. The tumour was extirpated, and a stitch inserted, without any pain having been either shown or felt. Her sensations, throughout, as she subsequently stated, had been of the most pleasing nature; and her manageableness during the operation was as perfect as if she had been a wax doll or a lay figure.

"No sickness, vomiting, headache, salivation, uneasiness of chest, in any of the cases. Once or twice a tickling cough took place in the first breathings"

I have, up to this date, exhibited the chloroform to about fifty individuals. In not a single instance has the slightest bad result of any kind whatever occurred from its employment.

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66. [In a paper published in the *Monthly Journ. of Med. Sci.*, for December, Prof. Simpson gives some further particulars in regard to chloroform, which we extract.]

"*Physiological Effects.*—After the first two or three full inspirations, a feeling of warmth and excitation, radiating from the chest to the extremities; followed by whirring noises in the ears; a sensation of vibratory thrilling and benumbing throughout the body; with, betimes, rapid loss of sensation and of motion, and at last of consciousness. Often before total unconsciousness supervenes, the patient, guided by instinct rather than by volition and reason, makes an effort to get rid of the inhaling vapour and handkerchief, as if it interfered with free respiration. During the full anæsthetic sleep produced by chloroform, sometimes no mental action goes on, or at least is remembered; in many others, the mind is active as in dreams. The respiration is usually at first soporose; the pupil sometimes natural, in others slightly contracted, in others dilated; the pulse is usually quickened ten or twenty beats at first, but afterwards falls to its normal rate, and, if the vapour is exhibited very long in very powerful doses, it comes down more and more below the natural standard; muscles of voluntary motion in general relaxed; more rarely cataleptic; still more rarely clonically contracted, as happens also occasionally with ether. In small doses, given slowly, its effects are exhilarating; and exactly like those generally following the inhalation of nitrous oxide gas.

"*Uses in Surgery.*—1. To relax the muscles in reducing dislocations, &c.: 2. To avert the sufferings attendant on deep probing, and other painful but necessary modes of diagnostic examination and dressing; and 3, and principally, to annul the pain of operations by the caustic, ligature, or knife.

"*Uses in Midwifery.*—To diminish and annul the physical pains attendant on labour, and more especially those which accompany the passage of the child's head through the pelvic cavity and outlet, (the second stage of Denman.)

"*Uses in Medicine.*—1. As an *anti-spasmodic;* as in asthma, laryngismus, tetanus, and other spasmodic diseases, &c. I have used successfully the inhalation of ether to arrest the paroxysms of hooping-cough, dysmenorrhea, colic, and the pains attendant on the passage of biliary calculi. In a case of the most severe, at the same time painful, spasmodic twisting and convulsions of the extremities attending a second attack of chorea, I allowed the patient ether inhalation; and sometimes she lay under its influence for hours, with relief while its action lasted, but generally without sleep. Latterly the chloroform has both relieved the spasms and their attendant pain, and procured sleep.—2. As an *anodyne* or *narcotic*. In neuralgia, I have seen chloroform stop the fit at once; in two other cases the pain remained absent only while the chloroform acted. A patient suffering under severe delirium tremens had remained awake for about seventy hours; a half ounce of laudanum, given at a single dose, failed to produce rest; ten hours afterwards, the inhalation of chloroform was immediately followed by several hours of critical sleep. What cases of insanity would it benefit? I have exhibited it in full doses in some cases of dementia, combined with excitement and wakefulness. They were all asleep in about a minute—and remained so for some time. In nothing does chloroform differ from ether more than in its soporific effects—when given in full doses, and continued for some time.—3. In small doses as a *diffusable stimulant;* to arrest the first commencement of ague, ephemera, &c.; in hysteria, &c. Perhaps it may be used by inhalation in small quantities when the stomach will not bear wine or other stimulants; in severe vomiting, fevers, &c. I have seen its inhalation at once dispel a sick headache.

"*Cautions.*—The liquid used should be sufficiently strong. Its proper sp. gr. is (as I have said) 1·480. It is certainly far too powerful an agent to be intrusted to nurses or unprofessional individuals. I have given it, up to this date, to above eighty persons, without the slightest bad result of any kind whatever in any one of them. The power, however, which we have with it, of bringing down the pulse, &c., shows that, if exhibited in too strong a dose, and given *uninterruptedly* for too great a length of time, it would doubtless produce serious consequences, and even death. But, certainly, all its *full* anæsthetic and other influences may be perfectly obtained without allowing it to produce such depression as would be in any degree dangerous. Like many other agents, it may be powerful for evil as well as for good. I believe its great potency will be one great safeguard against its abuse.

"Its influence upon the blood, &c., the counter indications to its use, &c. &c., remain still to be ascertained."

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67. *The New Letheon Agent.*—At a meeting of the Westminster Medical Society, (Nov. 20th,) Dr. Snow made some remarks respecting chloroform. He said that this agent, which had been introduced by Dr. Simpson, to be inhaled instead of ether, was preferable to the latter in some respects, although it was impossible that anything could be more efficient than ether, as it was capable of totally preventing the pain in every operation in which it might be properly applied. He considered that the action of chloroform on the nervous system was identical with that of ether; by regulating the proportion of vapour in the air, he had produced the same effects on animals by both agents; chloroform, however, had the advantage of being less pungent, and, therefore, less care was required in graduating its first admission to the lungs; it was readily inhaled, and produced its effects with great rapidity, and the quantity of it consumed was curiously small when compared with ether. He had administered it on Thursday, in an amputation of the breast performed by Mr. Tatum, at St. George's Hospital. He gave it with his usual apparatus, the water-bath being 55°, and the quantity of vapour in the air inhaled not more than ten per cent. by measure, yet the patient was ready for the operation to begin in less than a minute, and it was performed without the least sign of pain, being equal to the best cases of etherization. The patient recovered her consciousness, as might have been expected from narcotism by ether to the same degree, and she was going on well. Only one fluidrachm of the material was used, although about ten fluidrachms of ether would probably have been used in the same operation. He (Dr. Snow) had inhaled it until he became unconscious, and was very sick afterwards, as on the only occasion on which he inhaled ether to the same extent. When the full effects of ether could be induced quickly, there was no preliminary excitement, and as the new agent produced its effects very speedily, excitement previous to insensibility could probably be altogether avoided in its use. The chloroform placed on the table had been given to him by Mr. Bullock, the chemist; it had been rectified from chloride of calcium; he (Dr. Snow) found its boiling point to be 140°; he was not aware that the elastic force of its vapour, at other temperatures, had been ascertained; but, from some experiments that he had made, it seemed to follow a ratio very similar to those for ether-vapour and vapour of water; he had ascertained the quantity of vapour of chloroform that air would hold in solution, at various temperatures, and it was shown in a table, of which the following is a copy:—

Quantity that 100 *cubic inches of air will take up.*

Temp.	Cubic inches.	Temp.	Cubic inches.
50°	9	75°	29
55	11	80	36
60	14	85	44
65	19	90	55
70	24		

The quantity of this vapour in the air the patient inhaled at ordinary temperatures was only about a quarter as much by measure as there would be of ether,—being, however, nearly twice as heavy; there was nearly half as much by weight. Now, on account of the small space it occupied, it only excluded the air to a quarter the amount that ether-vapour did, and therefore interfered but little with the natural process of respiration; the patient, indeed, could take in nearly the usual amount of oxygen without quickening or enlarging the respiratory movements. It was to be observed that temperature exerted a great influence over the quantity of this vapour that air would take up, and thus an elevation of little more than fifteen degrees in the warmth of the apartment would double the amount of it which the patient would inhale in a given time, if no means were taken to regulate the evaporation. Dr. Simpson recommended the chloroform to be inhaled from a sponge or handkerchief, and this simple means was efficient; but he (Dr. Snow) preferred to use an apparatus, as, without it, more of the vapour was blown away by the warm breath of the patient than was inhaled. The strength of the vapour could not be regulated; it could not even be known when it was all expended, and no exact observations could be collected. The chloroform was of easier application than ether, on account of its quicker action; but for the same reason, greater care was required in its use to avoid accident.

Dr. F. Bird said that he had seen the chloroform administered that day in two operations, by Mr. Philips, at the Westminster Hospital; it was perfectly successful, and the patients recovered their consciousness very quickly.—*Lancet*, Nov. 27, 1847.

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68. *Operations performed at St. Bartholomew's Hospital, upon Patients rendered insensible to Pain, by the Inhalation of Chloroform.*—Holmes Croote, Esq., reports (*Lancet*, Nov. 27, 1847) three operations performed by Mr. Lawrence, on patients under the influence of chloroform,—two, lithotomy by the lateral operation, and the third, extirpation of a tumour from the breast. These cases, Mr. Croote says, confirm the favourable report given by Prof. Simpson, of the effects of this agent.

"These three patients," Mr. Croote states, "did not experience the smallest inconvenience from the inhalation into the lungs: the condition into which they were thrown—differing from the state of stupor, which commonly ensues after the inhalation of ether—bore the closest resemblance to profound sleep; they recovered quickly, the smell was speedily gone, and the cases are now going on most favourably.

"Without wishing in any way to detract from the very great merit of Professor Simpson, in introducing this valuable agent, I may observe that for some considerable time Mr. Lawrence has used, in private practice, the chloric ether, which is chloroform in spirit and water. *Patients with irritable lungs, who could not tolerate the violent paroxysms of coughing induced by the sulphuric ether*, readily inhaled the chloric ether, the taste and smell of which are similar to those of chloroform; the anæsthetic effect was more gently induced, and there were fewer complaints, on recocovery, of soreness of the chest, headache, &c. The less irritating effect of the chloric ether was noticed by Mr. Taylor, and by myself, in some experiments (reported in this journal) performed upon animals; their efforts to escape were most violent, when immersed in the vapour of sulphuric ether.

"One of the students of the hospital, who in the early part of the year was anxious to have some painful stumps of teeth removed from the jaw, kindly consented to take the ethers upon two different occasions, and to report the result. He described the taste of the chloric ether as much more agreeable than that of the sulphuric; the effect upon the lungs as less irritating and oppressive; but he thought that the state of unconsciousness was not equally complete. Mr. Lawrence has, however, performed many most severe operations upon patients rendered perfectly insensible to pain by the inhalation of the chloric ether, and he is now in the habit of directing its administration.

"The advantages which the chloroform appears to possess are so numerous and important, that if the results of subsequent trials are equally successful with those here recorded, there is little doubt of its superseding all other known anæsthetic agents. Some modification in the mode of its administration may be requisite, since, as I am informed by Mr. Mitchell Henry, one of the house-surgeons, the lips of two of the patients have been vesicated by the application of the sponge.

[Operations have also been performed, upon patients under the influence of chloroform, by Messrs. Liston, Fergusson, Aston Key, Hancock, Walton and other surgeons in London, and in Paris, by MM. Blandin, Roux, Vidal, and Amussat. The results obtained, are said to be confirmatory of the statements made by Prof. Simpson.]

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69. *Chloroform in Midwifery Practice.*—Dr. PROTHEROE SMITH, in a paper in the *Lancet*, (Nov. 27, 1847,) related the following case of labour in which he employed it.

"A lady, aged thirty-seven, of a highly nervous temperament; has been married fourteen years; had, in the first ten years after her marriage, four male and three female children, besides a miscarriage. During the last six years she has occasionally suffered from bearing-down and other symptoms of uterine distress, which were always aggravated by walking, especially so during pregnancy. Menstruation has been somewhat irregular and often scanty. She continued in good health till the evening of the 17th, when she had a sudden and severe pain in the left hypogastrium: she described the sensation as giving her the idea of something being torn from the womb.

"At twenty minutes past three o'clock A. M., on the 18th, a sudden gush of blood and some water occurred, and was followed by slight pains; at eight o'clock these recurred more or less severely about every quarter of an hour or twenty minutes, but remitted towards night. Examination per vaginam at this time discovered the os uteri high up and dilated to about the size of a sixpence; the head presented in the first position; the margin of the os uteri was very uneven and irregularly hard, feeling as though some beads were imbedded in its tissue. The pains became more regular in the evening of the 18th, recurring about every quarter of an hour, but again diminishing in both strength and frequency as night advanced. Towards the morning of the 19th, they became more persistent and came on every quarter of an hour till the evening, when the patient appeared rather exhausted. At this time the head was still above the brim of the pelvis; the os about the size of a shilling, and its edges presenting the peculiarity before mentioned. There had been occasional discharges of blood and liquor amnii. I could not detect any presentation of the placenta. The patient was ordered twenty-five minims of the sedative liquor of opium, which procured her a good night's rest.

"The pains came on again at seven A.M. of the 20th, and continued without interruption about every seven minutes. The os dilated very slowly, leaving the bead-like structure more distinct from the recession of the intermediate tissue. About four P.M., notwithstanding the pains were powerful, the os, which was dilated nearly to the size of an orange, yielded but slowly. I ordered a plentiful injection of hot water per vaginam, soon after which the os dilated more readily, though the anterior lip became œdematous, and was pressed between the head and os pubis.

"At this period of the case, the patient became very urgent for relief, and, with the consent of herself and friends, I began to administer the chloroform, during the terror of a severe pain. The countenance, which before had expressed severe suffering and intense anxiety, immediately relaxed into a placid smile, and in a few inspirations, the patient appeared in a profound sleep, when the inhalation was suspended, but renewed on the recurrence of each uterine effort. The contractions came on at the same intervals as before the inhalation. The os now yielded rapidly, and the membranes which protruded at the os externum were ruptured. There were two collections of liquor amnii; that which had escaped at twenty minutes past three on the morning of the 18th, (which was between the amnion and chorion,) and the true water, of which I have just spoken.

"A very large male child was born thirty-nine minutes after the commencement of the exhibition of the chloroform. Some coagula accompanied both the child and the placenta. The expulsion of the latter, which was unusually large, followed the child in about three minutes. Consciousness returned in about two minutes after discontinuing the chloroform, when the patient was perfectly calm and tranquil, and observed that she had had "a very refreshing sleep," and was altogether ignorant of the birth of her child. Two drachms of chloroform were used. Some coagula followed the after-birth, but the uterus was felt well contracted under pressure of the hand, and remained so on the application of the abdominal bandage, which I usually employ. No faintness or other unpleasant sensation was experienced, and the pulse, which, during the narcotic state, was 86 and full, was now the same in character, but 96 in number. A dose of ergot of rye was administered, and the child put to the breast, after which, some trifling after-pains were experienced. The patient took some slight refreshment with considerable enjoyment. It is very remarkable, that immediately after every previous labour, this lady had suffered from severe attacks of cataleptiform spasms, in which, at first, the features were extremely distorted, and afterwards the whole body became rigid. This condition was then rapidly followed by sudden flexion of the legs on the abdomen, whilst the knees violently struck against each other, requiring the aid of a strong person to restrain their movements. This state usually lasted some hours, and always recurred on the third day after delivery. In this confinement she has entirely escaped these symptoms, excepting a very slight attack, of an hysterical character, on the morning of the third day, which was instantly relieved by a draught, composed of valeriate of ammonia, Battley's solution, and camphor mixture. During the whole period of her preceding labour she had considerable flooding; and as there had been some loss of blood in the present instance, I deemed it prudent to administer a dose of ergot of rye at the termination of the labour. The after-birth presented on one side a black ecchymosed appearance, to the extent of four inches in length by two in width. This state of the placenta was probably produced by a partial detachment at the time of the sudden pain mentioned in the early part of the case. The average time which had elapsed in her previous labours between the birth of the child and the expulsion of the placenta, was stated to me to be an hour; in this case it was thrown off in three minutes. The protracted nature of the first stage of parturition in this lady, no doubt resulted from the anormal state of the labia uteri before mentioned. I will only add, she has felt no after-pains, excepting those which followed the first application of the child to the breast; and up to this period, Nov. 24th, both the mother and child are doing well."

[The value of Dr. Smith's testimony in favour of the chloroform is, to our mind, impaired by what appears to us an inconsistency in some of the statements in his paper. Thus, after stating that he has reported in the Lancet, cases in which he had exhibited ether, he adds: "*All these cases were perfectly successful, and were neither accompanied nor followed by any unpleasant symptom whatever.*" This result was the more satisfactory and conclusive, as amongst the cases which I published, were placenta prævia (four), severe floodings, turning, perforation, cases requiring both the long and short forceps, adherent placenta,—in short, some of the most formidable exigencies which the obstetric practitioner is called upon to meet." On the very same page, in enumerating "the advantages which chloroform possesses over ether," he mentions among others, "*the absence of the stage of excitement or stimulation, which almost invariably attends ether, and sometimes to an inconvenient extent. The greater rapidity and certainty with which the patient is brought under its influence.*" Chloroform does not leave any disagreeable odour about the breath or clothes, of patient or operator. "*No headache or other unpleasant effects are left behind.*" We leave it to Dr. Smith to reconcile these statements. Until he does so, we must be permitted to doubt the sincerity of his eulogy on his former hobby, since he is so ready to abandon it for a new one, and especially when he dismisses the former with so hard a kick, the moment he is fairly astride the latter. Dr. Smith is not singular in this conduct as will be seen presently.]

70. *Chloroform in severe Childbirth.*—The following case is related by Mr. Brown, Consulting Accoucheur to the Paddington Lying-in Charity.

Mrs. W——, aged forty, the mother of seven children, sent for me at half-past five, A. M. She had had labour-pains since one, A. M. I found the os uteri dilated to the size of a crown-piece, but all the external parts dry and tense, the liquor amnii having been discharged many hours previously. The pains were severe, and not very efficient, being checked in their progress by the funis, which was found subsequently to be round the neck and left arm. I proceeded to administer the chloroform, by placing a small quantity on a pocket-handkerchief, and allowing her to breathe it. In half a minute it produced an agreeable state of stupor, and she suffered but little from the next pain. I paid great attention to the practical and judicious remarks which Dr. Simpson kindly gave me, in a private note accompanying his pamphlet—viz: "In midwifery you do not require to keep the patient so *sound* and deep as in surgery, otherwise you will stop the pains; but she should be *so* deep as not to feel them. With chloroform I give a few inhalations before each pain. In the interval, keep her just asleep, and no more." Thus I found every pain subdued as to the patient's suffering, but not at all as to its expulsive power. After the first two or three inhalations the external parts gave way, and became moist, soft, and yielding. The head, which did not present in the natural way, but with the ear under the arch of the pubes, and the occiput under the sacro-sciatic arch, in about two hours descended to the perineum, and pressed hard upon it. I then gave a larger dose, and the child—a fine male—was born without the knowledge of the patient, and she awoke in five minutes, hearing its cry. The placenta came away entire in ten minutes, whereas in all her previous labours she had always either hour-glass contraction, or retention from other causes. The uterus contracted well, and continued so; the patient had no bad symptom, either vomiting or headache. In all, I used only *one* drachm. —*Lancet*, Dec. 4th, 1847.

71. *Chloroform in Instrumental Labour.*—Prof. Murphy mentioned, at a meeting of the Westminster Medical Society, (Nov. 27,) that he had lately exhibited the chloroform in a case of perforation, occurring in a woman with a deformed pelvis, and in whom no other operation could have been resorted to for delivery. Dr. Snow had, in this case, exhibited the agent, and though the operation lasted for three-quarters of an hour, she was quite unconscious during the whole time, and when she awoke at the conclusion of the operation, expressed her surprise at her delivery. She had undergone the operation before, and had suffered greatly, the consequences of the proceeding being felt by her for the space of three months afterwards, so that she could not leave her bed. In the present instance the operation had been performed only two days since, and she was now nearly well. —*Lancet*, Dec. 4th, 1847.

72. *Chloroform in Medical Practice.*—At the meeting of the Westminster Medical Society, Mr. Brown stated that he had recently employed it as a remedial agent in a case of bronchitis in a lady about fifty, in whom, after the acute symptoms had been removed by appropriate treatment, great restlessness and sleeplessness, with some cough, presented themselves. These were so urgent, that for three nights she obtained no sleep whatever. She could not bear any kind of opiate. Under these circumstances, he placed half a drachm of chloroform in a sponge to her nostrils. It took almost immediate effect, and she had two hours of most refreshing sleep. Restlessness, however, returned on awaking, and continued for some hours; but since then she has had good nights, and is free from the symptoms mentioned.

Mr. Greenhalgh had, the day before, exhibited the chloroform in the way recommended by holding it to the nose in a sponge. The patient was a gentleman, who was the subject of severe attacks of spasmodic asthma, which usually were of some duration, and from the effects of which he did not usually recover under two or three days. In this attack he administered forty minims of the chloroform. The patient almost immediately fell into a profound sleep, from which he awoke without any of the usual consequences of the attack. So pleased was he with the effect of the remedy, that he now kept a dose of the preparation in readiness to inhale if an attack came on. He (Mr. Greenhalgh) had employed chloroform in a great number of cases, and had himself frequently inhaled it. It had the advantage over ether of being more easily applied, producing no excitement, being more rapid in its action, and leaving none of the unpleasant sensations behind it which ether did.—*Lancet*, Dec. 4th, 1847.

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73. *Ether in Surgical Operations.*—Prof. Syme in an article on this subject in the *Monthly Journ. Med. Sci.* of August last, remarks:—

"Whilst discharging what I conceive to be my duty in offering this testimony as to the safety and efficiency with which ether may be administered, I am very far from desiring to sanction its indiscriminate employment, or attaching to it the importance that has been so much insisted upon by some popular writers. In an inflated article of 'the North British Review,' obviously written more with a view to make an impression upon the non-medical part of the public, than to convey useful information—the author, with greater credit to his plausibility than sincerity, if, indeed, he really possessed any surgical knowledge or experience, has not scrupled to magnify the value of an influence causing insensibility, or forgetfulness of suffering, by greatly exaggerating the pain of operations, and misrepresenting the effect of its suspension upon their performance. Physical pain is undoubtedly an evil, but certainly one of very secondary importance when compared with any want of perfection in attaining the object for which an operation is performed. It may be added, that the pain of trivial operations, such as the extraction of a tooth, or the evulsion of a nail, would form a very erroneous standard for estimating the amount of what is felt on the occasion of more extensive mutilations. I have frequently, in operating at the hospital, called attention to the perfect quiet and composure of patients under the greatest liberties ever taken with the human frame, such as the removal of large tumours, amputations, and lithotomy. On many of these occasions not one cry or groan, or even any alteration of the breathing, not a movement of the body, or contortion of the countenance could be noticed; and the patients, when asked to describe their sensations, have represented them as nowise unbearable.

"But however severe the pain really were, it would still be of little consequence when compared with the effects of the operation; and the patient, upon awakening from his ethereal trance, would be sorry to learn that immunity from suffering had been obtained at the expense of unnecessary injury to his body. It has been said, indeed, by the reviewer, that the ether, so far from impeding the proper performance of operations, will greatly promote it, by freeing the surgeon from a powerful inducement to hurry through their steps, instead of taking them with care and deliberation. But surely, though this argument might suffice for "*vulgus captandum*" purposes, it could not for an instant impose upon any member of the surgical profession. Operations performed quickly are in general performed well, not *because* of the short time they occupy, but in consequence of nothing more being done by them than what is actually required; while slow operations are in general ill-performed, not by reason of their slowness, but from the unnecessary groping, squeezing, cutting, and tearing required for their completion. If a surgeon can perform an operation properly, he will not render his work more perfect by protracting its execution; and if he cannot duly discharge his duty on a patient who retains sensibility, he will find himself no less unable to do so in operating upon one stupefied by ether.

In many operations it is of the utmost importance that the patient should retain a voluntary control over his movements, not only for assisting the operator by executing those that he may desire, but by abstaining from those which would be obstructive of the object in view. Thus I have known the little operation for fistula in ano not only impeded but prevented by the convulsive efforts induced through the use of ether. In all careful dissections, as those for hernia, and the removal of tumours from intricate connections of importance, I would therefore advise against the inhalation. I lately disarticulated a clavicle from the sternum, for osteo-sarcoma, and dissected out some large deep-seated tumours of the neck, with results which, I believe, might not have proved so satisfactory if ether had been used. In operations affecting the nose and mouth, also, I should think it inexpedient to render the patient insensible; lest from the want of voluntary effort, suffocation, or an approach to it, might arise from the entrance of blood into the air passages. Finally, I beg to warn against administering the ether to persons in a state of great weakness or exhaustion. About a week ago I performed amputation of the thigh on a young man brought into the hospital from the neighbourhood of Kirkcaldy, where, seven hours before the time of his admission, his leg had been completely shattered by a railway carriage. There was no sign of reaction, or promise of any from delay, and I therefore proceeded to remove the limb. Upon the incisions being made, relaxation of the sphincters took place, the contents of the rectum and bladder were voided, and an effort at vomiting seemed the prelude of immediate dissolution. Before tying the arteries, I waited to ascertain whether the condition of the patient depended upon syncope or death. My colleague, Dr. Duncan, by causing alternate pressure and relaxation of the chest, effected artificial respiration for some time without any sign of returning life. But by and by the actions of the system were gradually restored, and maintained through the use of stimulants. The wound has healed by the first intention, and the patient now seems to be in a fair way of recovery, which he most certainly would not have been if the vital powers had been in the slightest degree lowered or impeded in their operations by the use of ether."

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74. *Remarks on the Inhalation of Ether in One Hundred and Six Cases.*—Mr. **Wells** of the English Navy, gives the following as the result of one hundred and six cases in which he used ether vapour:—

The operations were—amputation of arm, 1; amputation of parts of hand, 4; lithotrity, 1; excision of tumours, 4; removal of polypi, 2; of inverted nails, 3; of necrosed bone, 1; opening and emptying ovarian cyst, 1; strabismus, 15; incisions for various purposes, as dividing fistulæ, opening sinuses, &c., 13; extraction of teeth, 59. I also applied the vapour in a case of hydrophobia, and in one of suspected malingering.

Effects.—No serious ill effects followed in any case. In only one was uneasiness excited; this was a little girl, who although not more than a minute under the influence, suffered from vomiting and faintness for nearly an hour, and remained for eight hours in a state of complete intoxication. The operation being only that for the cure of strabismus, could not have induced any such condition. In three delicate women, hysteric laughing and crying followed, but never lasted more than a few minutes. One young lady appeared to be in a profound sleep for four hours, but on recovery said, she had been quite sensible of everything that had occurred during all this time, although she was quite incapable of either speaking or moving. In no male was any ill effect observed. The wounds in every case presented a healthy appearance, and the processes of granulation and cicatrization were apparently in no way affected by the etherization of the patient. In nine cases, the inhalation was discontinued on account of suffocative feelings or convulsive motions of the patient; in fifty-two, the persons either cried, started, or moaned during the operation, but, on recovery, said they had felt no pain, although, in fourteen instances, they were conscious of what was being done; in forty-five, the success was complete, the patients giving no sign of sensibility during the operation, and on recovery, appearing quite ignorant that anything had been done. The sensations described by different persons were extremely various; generally there was some heat in the mouth and difficulty of breathing, followed by vertigo and conscious loss of muscular power preceding insensibility. By some, pleasant dreams, indescribable but delightful sensations, rapid flights through the air, gorgeous visions, and unearthly music, were described in glowing language; by a few others, a sense of great oppression, resembling nightmare, was complained of; in many others as total a temporary suspension of all the mental faculties and cerebral functions had taken place, as in the most profound sleep, nothing being remembered after the few first inhalations, until the period of returning consciousness. In those cases, where flushing of the face, turgescence of the neck, or convulsive motions, led to a discontinuance of the inhalation, nothing more than difficulty of breathing was complained of.—*Lond. Med. Gaz.*, Sept. 1847.

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75. *Ether in Dislocation*—Mr. **Dehane** records (*Prov. Med. and Surg. Journ.*,

Sep. 8th) a case of dislocation of the hip, into the foramen ovale, in a strong muscular man, reduced the day after the accident. "The patient did not appear to suffer much pain, although great force was gradually exerted for its reduction, and he had the appearance of a person partially tipsy, and continued to talk and laugh throughout the operation."

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76. *Ether in Traumatic Tetanus.*—In a lecture recently published in the *London Medical Gazette*, Mr. B. COOPER details the history of a case of traumatic tetanus, in which ether was employed. The subject of it was a boy admitted to Guy's Hospital for a lacerated wound of the hand. On the twelfth day, the patient was seized with symptoms of tetanus. Amongst other remedies, ether was administered, and was followed by temporary relief, but the spasms recurred, and he died on the sixth day from the first appearance of the tetanic symptoms.

Dr. CRAWFORD records (in the *British American Journ. Med. and Phys. Sci.*, Dec. 1847), a case of traumatic tetanus in which he employed ether inhalation. Two ounces of the ether were inspired, which induced a very transient sleep, and some incoherent raving, but no relaxation of the spasms, although the inhalation was continued for about twenty minutes. The case terminated fatally.

Dr. T. L. OGIER has also recorded (*Southern Journ. of Med. and Pharm.*, Nov., 1847) a case of traumatic tetanus in which the inhalation of ether moderated the violent muscular contractions but did not prevent a fatal termination of the disease.

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77. *Ether in Hydrophobia.*—Mr. ALLEN records (*Lancet*, Oct. 16th), a case of hydrophobia, in which the spasms were temporarily relieved by the inhalation of ether, without, however, preventing a fatal termination.

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78. [*Injurious Effects of Ether.*—Success is speedily heralded, whilst most persons hesitate to admit that they are less fortunate than their neighbours. Such has always been strikingly the case in regard to new remedies and novel surgical procedures, and this should be borne in mind, in estimating the value of the evidence *first adduced* in favour of any medicine or operation. Several hundreds of cases have now been recorded, in which ether has been successfully employed, while but few have been brought forward, in which it was productive of injurious consequences. It is a marvel which we confess being unable to solve, (except on the principle alluded to above,) that an agent so potent as ether, should have been administered in so many cases, often recklessly and by inexperienced persons and so seldom with ill effects, as far, at least, as published statements enable us to judge. Some few instances, however, of supposed injurious effects from ether have been recorded, and others have been indirectly hinted at: some of these we shall now notice.]

Prof. MURPHY, at the meeting of the Westminster Medical Society, (Nov. 20,) said that he had only employed the inhalation of ether in extraordinary cases, because he found that it caused excitement both before and after insensibility, and he dreaded the occurrence of hemorrhage at such times. He had known ether to cause spasms resembling the access of puerperal convulsions. (*Lancet*, Nov. 27.) At a subsequent meeting (Nov. 27) of the same society, after relating a case in which he had used chloroform, he observed, that when, in other obstetric cases, he had administered ether, he had been dissatisfied with the manner in which the patients recovered from its effects; the state which they then exhibited was similar to half-drunkenness. Had flooding occurred, under these circumstances, he should have been apprehensive of the result. After the use of chloroform the patient awoke quite tranquil.

MR. HANCOCK, after mentioning (*Ib.*) two cases of strangulated hernia in which he had operated, the patients being placed under the influence of chloroform, and in which the effects were most satisfactory; the patients awoke calm and collected. He added, "when ether was given, he had found patients awake in an excited state."

Mr. BARNARD HOLT also stated (*Ib.*) "that he had seen chloroform employed in several cases; in all of them it had produced violent convulsions."

79. *Hurtful Effect of Etherization in an Operation upon a Gunshot Wound.* By Mr. Lawrence, of Montrose.—As every fact bearing upon the subject of etherization is at present interesting, I make no apology for troubling you with the following brief statement:—

On the 27th ult., E. C., a boy 16 years of age, while firing off a pistol received a part of its contents into the thumb of his left hand, by which fully one-half of its second phalanx was carried away. He was brought to my surgery immediately after, and before proceeding to remove the remaining portion of the phalanx at the articulation, I employed the inhalation of ether in the usual manner. About a minute sufficed to bring him so much under its influence as to permit the necessary incisions without struggling, though not without cries. After sponging the stump, and while seizing the needle to secure the flap by a stitch, he awoke so far to a perception of what was passing, as urgently to request more of the ether to prevent him "feeling the pain." After a few deep draughts of the vapour, the narcotic effect was so powerfully produced, that the needle was thrust through the flap and the skin on the opposite side without the least manifestations of suffering. In a minute or two after, on being spoken to, consciousness returned; but scarcely had he expressed surprise at what had been done, when he was seized with a severe *epileptiform fit*, by which his whole body was violently agitated, and his face rendered turgid and distor ed. On being laid in the recumbent posture, and having fresh air freely supplied, he soon recovered, but felt much exhausted, and declared he had (while under the ether) been dreaming he was in a deep pit, from which he thought he would never be extricated. He was shortly after able to walk home. Next day he was perfectly well, and has continued so; and the wound is healing satisfactorily.

The recorded cases wherein the employment of ether inhalation has been attended with injurious or unpleasant results seem to range themselves under two classes:—First, in a certain, and probably much the larger proportion, the unfortunate phenomena have been such as practitioners have been accustomed to observe occasionally in similar circumstances, before the inhalation of ether was thought of; and while this by no means *dis*proves the agency of ether in their production, it ought to prevent the "*post quod ergo propter quod*" mode of reasoning into which we are so readily betrayed. Secondly, in a limited number the unfortunate sequences have been such as could hardly be accounted for, otherwise than by a reference to ether as their immediate cause. To the latter class, I apprehend, belongs the case now narrated. The boy had never previously had a fit, and neither the injury received, nor the subsequent operative procedure, can with much plausibility be regarded as the *direct* agent in the production of the one referred to. But the question may be asked, is it likely that the injury (being a contused lacerated wound, involving nervous and tendinous structures) had *predisposed* to the occurrence of the fit? The affirmative is perhaps not altogether a gratuitous assumption. It is well known that such accidents are often the cause of traumatic tetanus, at times following pretty closely upon their occurrence. Is it, therefore, a departure from sober theorizing to suppose, that in this instance there had been produced upon the nervous centres such a degree of that specific morbid impression which in certain circumstances issues in tetanus, as proved adequate, under the superadded influence of the ether, to occasion the paroxysm referred to? From one such case, and even from several, it were obviously unsafe to draw a decided inference; but the gradual accumulation of such facts will, by-and-by, afford the requisite data whence the desiderated laws of the influence of ether may with some certainty be determined. Meanwhile, this much may be averred, that *facts*, no less than the spirit of true philosophy, rebuke, on the one hand, that scepticism which would reject *in toto* the use of this potent agent, because in some cases unpleasant results have attended it; and, on the other, that false confidence in its virtues which asserts, that under no circumstances can its employment prove injurious.—*Month. Journ. Med. Sci.*, Oct. 1847.

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80. *Ether Inhalation—Death.*—On July 10th, at the Hôtel Dieu of the city of Auxerre, a man, aged fifty-five, of a robust constitution, was placed under the influence of ether, for the purpose of undergoing an operation for the removal of a cancerous tumour. After an inhalation of two or three minutes, considerable

agitation was observed in the face and limbs; during five minutes more, the inhalation was continued, and complete insensibility was established. The first incision was performed; but the dark colour of the countenance having attracted the operator's attention, the pulse was felt, and the patient almost immediately expired. On dissection, the brain, lungs, and heart, the liver, kidneys, and spleen, exhaled a strong smell of ether; the blood was dark and viscid, and the lungs were, in their posterior parts, the seat of hypostatic congestion.—*Med. Times*, Nov. 20, from *Journal des Connaiss. Med.-Chirurg.*

81. *Ether Inhalation.*—The able editor of the *Monthly Journal of Med. Sci.*, in his Number for December last, observes:

"Our readers will remember, that when ether was first introduced, we pointed out that dangerous effects sometimes resulted from its use in certain individuals. These effects, we now know, were entirely owing to the imperfect apparatus, and want of skill employed in its administration. They were not, however, on that account, less dangerous; and a want of proper precautions with the new agent, inasmuch as its power is much more intense, will certainly lead to even greater mischief. In many persons, however, we are bound to say, very grave symptoms have been only hazardous in appearance. We have seen it produce stertorous breathing, foaming at the mouth, tetanic rigidity, and rapid and alarming fall of the pulse; and yet such individuals have recovered as well, and with as little inconvenience, as those who have been thrown into a tranquil sleep. Whilst, therefore, such symptoms should induce extreme caution, observation hitherto has not demonstrated that they are really dangerous."

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

82. *Infanticide in China.*—With respect to the commonly received reports of infanticide among the Chinese, there can be no doubt, Mr. Smith (deputed by the Church Missionary Society) took special care, personally, to inquire into this fact. It is practised chiefly among the poorer classes, and it is the female infants who suffer; a poor man, in his old age, usually receiving support and assistance from his sons, whereas his daughters are generally married early, and are then no longer considered as part of the family. On repeated occasions, and before a numerous assemblage, fathers, when questioned by Mr. Smith regarding this subject, seemed to have no hesitation in openly and simply avowing the fact. He was told that, in the province of Fokeen, at a place called Kean Yingchou, five days' journey above Canton, there were computed to be from 500 to 600 infanticides in a month. The comparative infrequency of the practice at Canton arose from the establishment, by government, of a foundling hospital there, where 5000 female children of the lowest classes, were annually received. While visiting some of the villages in the vicinity of Amoy, the subject of infanticide was introduced to the people. They stated that out of six daughters, it was customary to kill three. Some murdered four, and a few even five, out of the same number. They said that the proportion of female children which they put to death, entirely depended on the poverty of the individual. They said that the death of the infant was effected immediately after birth, and that four different modes of infanticide were practised amongst them; drowning in a vessel of water, pinching the throat, stifling by means of a wet cloth over the mouth, and choking by a few grains of rice placed into the mouth of the infant. If sons were alternately interspersed with daughters in a family, the people esteemed it good luck, and were not accustomed to murder the female children. One old man who was questioned, confessed publicly before the crowd, that out of six daughters, he had murdered three. He said that he smothered them by putting grass into their mouth. The people, perceiving the disgust and indignation which the recital of these facts caused, at last became ashamed of their conduct, showing how easily the conscience may be awakened to the enormity of such actions. In the other parts of China, visited by Mr. Smith, no well authenticated cases were brought within his

notice, sufficient to prove that this crime prevailed to any considerable extent. In the vicinity of Shang-hai and Ning-po, the moral atrocity, if perpetrated, lurks in secret, and is comparatively too rare an occurrence to be regarded as possessing the sanction of public opinion.—*North British Review*, Aug., 1847. T. R. B.

83. *Opium Smoking.*—Another prominent vice of the Chinese is opium smoking. This to no certain extent has been practised for a long period, but of late years has increased. An opium house in Amoy is thus described by Mr. Smith.

"The first opium house which we entered was situated close to the entrance to the Taou-lais palace. Four or five rooms, in different parts of a square court, were occupied by men stretched out on a rude kind of couch, on which lay a head pillow, with lamps, pipes, and other apparatus for smoking opium. In one part of the principal room, the proprietor stood, with delicate steelyards, weighing out the prepared drug, which was of a dark, thick, semi-fluid consistency. A little company of opium smokers, who had come hither to indulge in the expensive fumes, or to feast their eyes with the sight of that which increasing poverty had placed beyond their reach, soon gathered around us, and entered into conversation. They formed a motley group of sallow, sunken cheeks, and glassy, watery eyes, as, with idiotic look and vacant laugh, they readily volunteered information, and described the process of their own degradation. There was to be seen the youth, who, just emerging from boyhood, had only commenced the practice a little time before, and was now hastening to a premature old age. There was the man of middle age, who for half his life, a victim of this pernicious indulgence, was bearing with him to an early grave, the wreck of his worn-out constitution. There was, again, the more elderly man, whose iron strength of frame could better ward off the slow, but certain advance of decrepitude, but whose bloated cheek and vacant stare told of the struggle that was raging within. There was, again, the rarely seen spectacle of old age, and the man of sixty lived yet to tell of forty years consumed in the seduction of this vice. They all assented to the evils and sufferings of their course, and professed a desire to be freed from its power. They all complained of loss of appetite—of the agonizing cravings of the early morning—of prostration of strength, and of increasing feebleness, but said that they could not gain firmness of resolution to overcome the habit. They all stated its intoxicating effects to be worse than those of drunkenness, and described the extreme dizziness and vomiting which ensued so as to incapacitate them for exertion. I subsequently visited about thirty other opium shops in different parts of the city. The people say that there are nearly a thousand such establishments in Amoy."

A confirmed opium smoker generally consumes daily about a mace of opium, which is equal to one drachm, or sixty grains, the price of which is about eight pence sterling, a large sum of money in China. In fact many of the poorer classes consume from a third to a fourth of their whole earnings in this pernicious practice.

Drunkenness does not appear to be a prevailing vice among the Chinese. In general, the people are temperate both in eating and drinking.—*Ibid.* T. R. B.

84. *A Case of Poisoning by Vinegar.* By A. H. David, M. D., Montreal.—A widow woman, with four children, took, as near as I could ascertain, a quart bowl full of common vinegar. It appears that she had been dull and low spirited for two or three days previous, in consequence of the neglect (as her friends suppose), of a person from whom she had received the most marked attention, and to whom she had been attached prior to her marriage with her late husband. When I saw her, about three hours after she had taken the vinegar, she was in bed, covered with a cold perspiration, trembling from head to foot, and apparently alarmed at every body, and everything around her. Her breathing was very laborious and hurried; her countenance perfectly wild, and the pupils dilated; the tongue was dry and cold; pulse 96 and full; the abdomen much distended, with extremely acute pain at the *scrobiculus cordis*, so much so, that the slightest pressure there, caused her to shriek out. She did not know any one about her, not even her own children, nor had she any recollection of anything that had happened, from the

time of taking the vinegar, which was about eleven o'clock at night, not even of her having gone to bed, which she was the last in the house to do. About one o'clock, the inmates were all awakened by her shrieking for cold water, of which she had drunk an enormous quantity, before I was called to see her. There was not any pain, heat, or constriction of the throat and fauces, but there were slight efforts to vomit. Having procured some sulphate of zinc, I gave her two scruples in a cup of water, which soon produced full vomiting, with great straining. I had then to leave her, but ordered full and repeated doses of carbonate of magnesia, till I could see her again, which I did about six hours after, and found her much relieved, and only complaining of headache, which left her after the operation of a dose of castor oil. Two days after, she was taken ill with a slight attack of continued fever, but is doing well.

Dr. David will find, that Taylor, in the last edition of his *Manual of Medical Jurisprudence*, quotes the case of Orfila, in which a female lost her life by taking strong vinegar.—*British American Journal of Medical Science*, September, 1847.

T. R. B.

85. *A New Method of distinguishing between Arsenical and Antimonial Spots.*—M. Cottereau, jun., proposes the following: Let the spots, obtained on porcelain capsules, be exposed to the vapour of phosphorus, and for this, place small fragments of the phosphorus on a flat surface, and hold over it the capsule bearing the spots. The process is accomplished at the ordinary temperature. All the arsenical spots disappear in the course of a few hours, while those of antimony resist the effect for a period longer than even fifteen days. Finally, however, they disappear at least in part; and if, at the end of this time, the capsules be held over a cup containing sulphuretted hydrogen in solution, the emanations from that gas will reproduce the spots; those of the arsenic being in the state of its yellow sulphuret, and those of antimony, of its red sulphuret. All these spots present precisely the form they originally had.—*Encyclographie*, from *Gazette Médicale de Paris*, 1846. T. R. B.

86. *Poisoning by Strychnine.*—The following case by Dr. Theinhart, presents a remarkable example of the characteristic symptoms of this poison.

A student of pharmacy, of intemperate habits, on returning from a ball, where he had danced much and drank much, went to bed, and immediately afterwards swallowed a certain quantity of strychine. On the arrival of Dr. Theinhart, in about quarter of an hour after he had swallowed the poison, he confessed that he had taken nearly two grammes (thirty grains) of strychnine, dissolved in alcohol.

He was lying tranquil in bed, with a natural skin and pulse, and indeed his appearance was such, that Dr. T. refused to believe that the poison had been taken, although this was repeatedly asserted by the patient. Meanwhile, convulsive motions commenced over the whole system, the respiration was quickened, and the convulsions were succeeded by stiffness of the whole body. An emetic was given to check this, but without effect. At the end of a few minutes, a more violent general spasm came on, followed by a third and a fourth one, during which the patient uttered horrible cries. In half an hour, he was dead.

The tongue, gums and lips were violet coloured. So also were the fingers and toes. The first were convulsively retracted, and the last drawn in. The whole body was as rigid as a stick of wood, and slightly bent on itself.

During the slight intervals of consciousness, no satisfactory account could be obtained as to his sensations in the seat of the pain, which nevertheless was evidently felt in the region of the stomach. The neighbours heard loud cries before the arrival of the physician.—*Ibid.* from the *Gazette Médicale.* T. R. B.

87. *Joanna Southcott.*—I copy from a magazine, published in 1815, the following certificate of the examination of the body of this female, who had numerous followers in her day in England, and who, for a long time, declared herself pregnant of a child that was to be the *Saviour of the world.* Her deluded disciples did not abandon the belief until death took her from them.

"We, the undersigned, present at the dissection of Mrs. Joanna Southcott, do certify that no unnatural appearances were visible, and no part exhibiting any visible appearance of disease, sufficient to have occasioned her death; that a number of gallstones were found in the gall-bladder, and the intestines were unusually distended with flatus, and no appearance of her having been pregnant. The uterus was not distended, enlarged, or diseased, but on the contrary rather smaller than the usual size."

Signed by Dr. Reece, Dr. Sims, Dr. Adams, Mr. Clarke, Mr. Want, Mr. Cooke, Mr. Stanhope, Mr. Caton, Mr. Phillips, Mr. Darling, Mr. Forster, Mr. Whetherall, Mr. Stanton, Mr. Wagstaffe, Mr. Wilkinson. T. R. B.

88. *Latest Case of Supposed Spontaneous Combustion.*—The *Gazette Médicale* relates the following facts in a recent number. On the 6th of January last, the body of a man was found lying in bed, and in a state of combustion, by some persons who entered his bed-room in the morning. The chamber was filled with a dense smoke, and one of the witnesses asserted, that he saw playing around the body of the deceased, a small whitish flame, which receded from him as he approached. The clothes of the deceased, and the coverings of the bed were almost entirely consumed, but the wood was only partially burnt. There were no ashes, and only a small quantity of vegetable charcoal; there was, however, a kind of mixed residue, altered by fire, and some pieces of animal charcoal, which had evidently been derived from the articulations. The deceased was in the habit of carrying lucifer matches in his waistcoat pocket, and according to his usual practice, he had had a hot brick placed at his feet when he went to bed the preceding evening. Two hours after, his son and daughter-in-law passed by the door of his room, but there was nothing which attracted their attention. It was only the following morning early, that his grandson found his body in the state described. The deceased was seventy-one years of age. He was not fat, nor was he addicted to drunkenness. The temperature of the air was low, and there were no indications of electricity. The son and his wife were suspected of having murdered the deceased, and burnt the body in order to conceal the traces of the crime; and a Dr. Masson was commissioned to investigate the case. The body, which had been buried, was exhumed and examined. The cravat, partially burnt, was still around the neck, and part of a sleeve of the night shirt was found. The hands, completely burnt, were only attached to the forearms by some carbonized tendons, which gave way on the slightest touch. The thighs were completely detached, so as to resemble a wilful mutilation, but for the discovery of animal charcoal about them. From the facts, Dr. Masson (considering it impossible to ascribe these changes to the effects of accidental burning, and that, under common circumstances, they could only be produced by a violent combustion continuing for some time), drew the inference that the burning must have resulted from some inherent cause in the individual, probably roused into activity by the hot brick placed at the feet of the deceased. The burning once commenced, would be easily supported by the state of the tissues. Hence, the case was, in his opinion, to be referred to the class of spontaneous combustion. It is said that Orfila coincided with Masson in this opinion, and that the accused were acquitted.—*Atlas,* (London Newspaper,) Sept. 25th, 1847. T. R. B.

89. *Test for Arseniates.* By R. D. Thompson, M. D.—I may notice a simple and quick method of testing minerals containing arsenic in its various forms, phosphates, molybdates, vanadiates, &c. A few grains of the mineral to be examined are to be finely pulverized in an agate mortar, and introduced into a test tube, and boiled with bisulphohydret of ammonia for a few minutes. The mineral is partially decomposed; the sulphate of lead precipitates, while sulphate of arsenic, &c., is dissolved by the excess of the reagent. The tube is then allowed to stand at rest, and the supernatant liquor poured off or filtered. The excess of bisulphohydret of ammonia being removed by evaporation, the yellow sulphuret of arsenic precipitates. A molydate is detected at once, by the fine orange-red colour, which the reagent assumes when it is heated in contact with that mineral.

A vanadiate gives a dark colour, but possessing less of the red shade than the molybdate. The liquor filtered from the sulphuret of lead containing the vanadium in solution, has a green colour, becoming blue by the addition of hydrochloric acid.

Hence it appears that arsenic dissolved in bisulphohydret of ammonia does not alter the colour of that reagent, while the liquor gives a precipitate of orpiment by concentration. The liquor filtered from the sulphuret of molybdenum is colourless, or its hue is similar to that of the reagent, while the liquor derived from the vanadium precipitate is *green.*

The bisulphohydret affords a simple distinguishing test between metallic arsenic and antimony, where spots have been received on porcelain by Marsh's process. Arsenic dissolves in the reagent and leaves a yellow stain by evaporation. Antimony dissolves and leaves an orange stain. For this experiment, it is convenient to use the inside of the cover of a porcelain crucible.—*London, Edinburgh and Dublin Philosoph. Magazine*, October, 1847. T. R. B.

90. *Œnanthe Crocata.*—Many instances are on record of its destructive poisonous results in England, while in Scotland, Dr. Christison affirms that the plant is not poisonous at all. The existence of the yellow juice from which the species is named, is equally capricious. From the limited observations recorded in the *Phytologist* (an English Botanical Journal), it would appear that the yellow juice and active poisonous properties are coincident.—*British and Foreign Med. Review*, October, 1847. T. R. B.

91. *Malformation of the Female Organs a ground of Divorce.*—The English Ecclesiastical reports continue occasionally to furnish new cases for the investigation of the medical jurist. As the present is truly called a singular, and indeed, is almost an unique one, I will present an analysis of it, as given in *Robertson's Ecclesiastical Reports*, vol. i. p. 279.

The parties, whose names are concealed, were married on the 3d of February, 1842, the husband being aged about twenty-six years, and the wife twenty-five. The husband stated, in his application for a divorce, that they had lived together until the 11th of November, 1844, when she returned to her father's house; that the marriage had never been consummated, in consequence of a natural mal-conformation of the sexual organs; that he for some time was of opinion, that the inability was the result of a temporary obstruction, which would probably yield to simple exercise, aided by horse exercise, which he recommended to her, and in the use of which she long persisted: that, in the months of September and October, 1844, she, at his earnest entreaty, submitted to an examination by Drs. Bird and Lever, and upon their concurrent reports, as to her natural and irremediable mal-conformation and bodily defects, he for the first time, disclosed to his legal advisers the non-consummation of the marriage, and now applied for a divorce.

The answer contained a general denial of the statement of the mal-conformation and non-consummation, and stated, that in the months above named, in 1844, she, by reason of not having any child, and not on account of any natural or irremediable conformation or bodily defects, submitted, at her husband's earnest request, to medical examination.

On the 5th of April, 1845, Dr. Bird, Dr. Cape and Dr. Lever were appointed by the court, inspectors to examine the female. Their report is as follows:

"*April* 5, 1845. We, the undersigned, have this day particularly examined the parts of generation of Maria D., and we are unanimously of opinion, that she is undoubtedly capable of performing the act of generation, and of being carnally known by man. We are further of opinion, that although sexual intercourse can occur, yet conception cannot result." Signed as above.

This report leaves the matter rather mysterious, even to a medical man, and it is therefore necessary to state the evidence of Dr. Bird and Dr. Lever.

It seems that the former was consulted by the defendant for about a year past, for certain ailments, and in pursuing his inquiries respecting her indisposition, he found it absolutely necessary to make an examination, and the result was, that he ascertained that the external sexual organs were imperfect, or rather undeveloped; that she had the appearance rather of a girl not having attained puberty, than an adult; and internally, the vagina, which ought to have been of an internal depth of about three inches, was, in fact, as ascertained by admeasurement, only three-quarters of an inch in depth. "This was decidedly a natural malformation of the parts, but not such, as I was enabled without further investigation, to pronounce whether remediable or irremediable, though it was certain, that if the former, it could only be effected by an operation. With the view of endeavouring to ascertain if an operation could be performed with a prospect of success, a more minute and careful investigation became necessary, and such was subsequently made by myself in conjunction with Dr. Lever, and it was then ascertained that the internal structure of the organs of generation were, in addition to the deformity already mentioned, further importantly deficient and imperfect, there not being any uterus. This was ascertained by me beyond the slightest possibility of doubt, and that the vagina formed an impervious *cul-de-sac*, and that, consequently, any operation would be wholly ineffective; and I depose that the said Maria D. is, therefore, irremediably incapable of procreation and conception, arising entirely from the organic deformities which I have explained, viz., the absence of the uterus and the irremediably impervious state of the vagina."

Dr. Bird further deposed, that on the examination made April 5th, 1845, with Drs. Lever and Cape, he had found that the vagina had become considerably elongated, being now of the depth of two inches, ascertained by actual admeasurement. "I cannot, therefore, depose that it is absolutely impossible for the vagina to attain a further elongation, but I am not acquainted with any means, medical or otherwise, capable of improving its existing condition." He further stated as his opinion, that the deformity did not entirely prevent her from having connection, as it had undoubtedly taken place, but such connection must be of an imperfect character, and allowing only a partial insertion of the penis. The husband had communicated to him the imperfect connection he had had, and with great declared suffering from pain on her part, but that he had attributed it at first, and for a long time, to a mere temporary obstruction capable of being overcome by further intercourse.

The testimony of Dr. Lever coincides in all the main points with that of Dr. Bird. He states, however, that the female admitted to him the total absence of the menses. As to the partial extension of the vagina, he was unable to say whether it had been caused by sexual intercourse or by artificial means.

On this testimony, the case came to trial. For the husband it was urged, that this is not the case of a woman who is barren; that undoubtedly would be no ground for a sentence of nullity—but of one who has no uterus, and in addition to that defect, has her vagina so formed as to preclude sexual intercourse in the proper sense of the term. If a woman be "*mulier viro inutilis*," or, as it is otherwise expressed, "*inhabilis*," arising from a natural irremediable defect, which is the case here, there is just ground for a sentence of nullity.

The counsel for the wife insisted that to entitle a party to a sentence of nullity, there must be an *utter impossibility* of sexual intercourse. This is not proved by the plea. The case is one of mere sterility, which is no ground for a sentence. Besides, there has been an improvement in the elongation of the vagina, and they will not undertake to depose that there may not be a further elongation. To justify the sentence prayed, the defect must be permanent and irremediable. Again, actual consummation has taken place.

The judge (Dr. Lushington) took time to consider the case, and on the 7th of June pronounced judgment.

The inspectors' report, if considered by itself, is clearly insufficient to justify a decree in favour of the husband. It declares the power of consummation, but denies the power of conception. But, two of them have been examined, and it is necessary to consider their evidence. Mere incapability of conception is not a sufficient ground whereon to found a decree of nullity. "The only question is, whether the lady is or is not capable of sexual intercourse, or if at present incapable, whether that incapacity can be removed?"

The effect of Dr. Bird's testimony is, that there may be connection of a very *imperfect character*. He cannot say that it is impossible that the vagina should obtain a further elongation, but it must always remain in a deformed and unnatural state. The evidence of Dr. Lever does not materially differ from this.

Now the evidence and the report do not convey the same idea. The latter would induce a belief, that the act of generation might take place in its ordinary and perfect form; the evidence speaks of its very imperfect character. The report is silent as to the possibility of cure.

"Certainly, all the circumstances combined, form a case of no ordinary difficulty. It is no easy matter to discover and define a safe principle to act upon; perhaps it is impossible affirmatively to lay down any principle, which, if carried to either extreme, might not be mischievous. Very little assistance can be obtained from authorities. I must rather endeavour to find out what are the true principles of law and reason applicable to the case, following as far as practicable, or rather not contradicting, former decisions." Sexual intercourse, present or to come, is necessary to constitute the marriage bond between young persons. And this intercourse must be ordinary and complete, not partial and imperfect; yet it would not be proper to say, that every degree of imperfection would deprive it of its natural character. There must be degrees difficult to deal with; but if so imperfect as to be scarcely natural, I should not hesitate to say, that, legally speaking, it is no intercourse at all.

The evidence of the witnesses is somewhat ambiguous. As to conception, there is no doubt that the malformation is incurable, but it is to me doubtful whether they mean that it is incurable as to the mere coitus. If there is a reasonable probability that the lady can be made capable of the natural sort of coitus, I cannot pronounce this marriage void; but if she is not, and cannot be made capable of more than an incipient, imperfect and unnatural coitus, I would pronounce it void. Such an intercourse must cause disgust, lead to adulterous connection, or else force the husband to a state of quasi unnatural connection.

The discrepance between the report and the evidence is such as to prevent a decision until Dr. Cape is examined, and the following questions, in addition to the examination of the parties, are to be put to him:

1. Whether (without regard to the impossibility of conception) the lady was, at the time of his examination, capable of the act of generation in its natural and ordinary meaning, or only of incipient and imperfect coition?

2. Whether, if not capable of generation in its natural and ordinary meaning, but only of incipient and imperfect coition, such defect arises from malformation incapable of cure, so as to allow of the natural and perfect act of coition?

Dr. Cape, after mentioning his examination of the female in March, 1844, and his subsequent one in consultation with Drs. Bird and Lever, in April, says that during the latter he found the depth of the vagina increased in depth. It was precisely two inches; the natural depth would be from four inches to four inches and a half; that this state of things is decidedly a malformation of the sexual organs, positively irremediable; no operation could be performed to effect a cure; that she is capable of a restricted and limited connection, and not of one in its natural and ordinary meaning; it cannot be called perfect, though it is beyond incipient coition. It is just possible that a further, but very slight improvement might take place by continual, frequent sexual intercourse, or by mechanical means. "I will not swear that the vagina is impossible to be further elongated, but I do swear, that it could not be effected without endangering life, or running serious risk of doing so."

July 8. The cause came before the court again, with the additional evidence of Dr. Cape, and after hearing counsel thereon, the judge pronounced the marriage null and void. T. R. B.

HYGIENE.

92. *Egypt as a Winter Residence for Invalids.*—(*Monthly Journ. Med. Sci.*, Nov. 1847.)—Dr. Walter Bain accompanied a young gentleman in delicate health to spend the winter in Egypt, and having had his attention directed to the climate, and its influence on disease, has given the results of his observations:—

"In Cairo, lat. 30° N., during October and November, the thermometric range was as follows:—

Months.	Thermometer. Max.	 Min.	 Med.	Diurnal Range. Greatest.	 Least.	 Med.
October,	78°	67°	73°	10°	4°	7°
November,	74	60	64	11	2	5

"During this period, rain fell once, a slight shower of a few minutes' duration. In October, the waters of the inundation were rapidly subsiding, and in consequence, there was a considerable quantity of moisture in the air; but by November, the river had contracted within its banks, the water had disappeared from the ground, and the air become perfectly dry. Until November there was almost no wind, but with that month northerly breezes set in, and continued without any change during the entire winter. The winds exhibited a good deal of periodicity, blowing strongly during the day, thus moderating the extreme heat, and suffering a diminution of intensity, frequently amounting to complete cessation at sunset. During November the sky was beautifully clear, the air dry and elastic. The heat of the day was considerable, but very agreeable. The nights were mild, and dews of very rare occurrence.

"At the end of this month, we commenced the voyage up the Nile, and as a general rule, it was observed, that, in proportion as we sailed farther south, the midday temperature increased, while that of the night diminished. Rain fell once during the voyage—of ten weeks' duration—and dews were as unfrequent as at Cairo. The evenings were very mild, but as the night advanced, the temperature sunk so much, that we felt the air excessively cold. At Thebes, lat. 26° N., I had an opportunity of observing the thermometer for a week.

Thermometer. Max.	 Min.	 Med.	Diurnal Range. Greatest.	 Least.	 Med.
81	68°	77°	12°	5°	9°

"In Nubia, the same phenomena were noticed, the only difference being, that the maximum and minimum temperatures were, the one greater, and the other less, than at Thebes.

"Our downward voyage commenced January 4th, 1847; and every day we felt the heat less, and the winds colder. At Thebes, for three days, I find that the thermometer ranged as follows:—

Days.	8 A. M.	Noon.	8 P. M.
January 15	64°	76°	66°
" 16	62°	75°	64°
" 17	63°	79°	67°

"The wind blew strongly against us during the entire voyage down the river, and was so cold that we could not expose ourselves to it without protection; and, when we reached Cairo, the weather was disagreeably cold for several weeks. Rain fell five times during February; the sky was cloudy, and the sun obscured. The thermometric range for the month was as follows:—

Max.	Min.	Med.
76°	57°	61°

"The maximum temperature stated in the table, was reached during the last days of the month, about which time the weather began to improve, and in a short while Cairo became as agreeable as before.

"The chief peculiarity of the Egyptian climate is its dryness, proved, by the foregoing observations, by the united testimony of travellers, but, above all, by the monuments on the banks of the Nile, the sculptured surfaces of which have retained, during a period of several thousand years, all the sharpness and polish of their finished state, and by the brightness of the colours which adorn the interior of temples and tombs, for ages exposed to the influence of the atmosphere. Moisture is found in the air only during the subsidence of the Nile, and even then it is rapidly abstracted by the arid sands of the desert, which hems in the valley of the river on every side. The heat of the summer months is said to be very great; but during the five months of the year spent by us in the country, it was not only tolerable, but very pleasant. In spring, the Egyptians are annoyed by the prevalence of a hot south-east wind, similar to the sirocco of Malta and the Italian coasts, and, like it, also trying both to natives and strangers. It is called by the natives "Khamseen," or fifty-days wind, and usually sets in about the middle of March; but it is generally heralded by pilot blasts for several days before its appearance. During this season, the diseases peculiar to Egypt prevail with greatest intensity; but, if we except it, and the period during which the Nile is subsiding—when intermittents abound and plague usually begins—this country is said to be remarkably favourable to health and longevity.

"The climate of Egypt is liked by most Europeans, and many have chosen to live in Cairo in preference to any other place, solely on account of the atmosphere. Most of those who sojourned there during last winter, on account of health, derived much benefit, and several, who had formerly wintered in other places, gave it a decided preference. My friend improved very much during his stay. Pulmonary symptoms, which had begun in Scotland, disappeared on his arrival in Egypt, and were never afterwards thought of; and chronic bronchitis, with a cough which harassed myself incessantly, gradually became less severe, and, ere I left the country, had quite gone.

"Egypt offers to the invalid the advantages of a warm and dry winter residence, and, though the temperature is not so equable as that of some other places, it possesses the additional recommendation of being, perhaps, the most interesting country in the world, affording thus, with bodily ease and comfort, mental recreation of the highest order.

"The invalid who intends passing the winter in Egypt, should not land in that country before the middle or end of November, and, on reaching Alexandria, he ought to start for Cairo without delay. As in almost all cases, he must leave England in September, or early in October, he ought to arrange his voyage so as to delay somewhat in a latitude north of the Mediterranean. Any route may be chosen. Through France to Marseilles, or Germany to Trieste, are now common highways to the East; but, on the whole, I think the best way for the invalid to adopt is, to leave Southampton for Corunna, thence down through Spain and Portugal to Lisbon or Cadiz, from either of which ports he can find steamers to transport him to Malta and the Levant. This I deem a very agreeable route. The climate of Spain is finer than that of Germany, and even that of France, during the month of October; and, as it is customary to return through Europe, a passing glance at the Peninsula may thus be obtained without additional trouble or expense. Once in Cairo he should be in no hurry to proceed up the Nile. The short winter experienced by the Cairenes is during January and February; so these months ought to be spent in Nubia, the most southerly region to which a voyage can be made with comfort.

"Cairo and its environs afford sufficient amusement for a month, and by the end of December, the Nile voyage may be undertaken. Two months are usually spent on the river; by the invalid the voyage should be prolonged to the middle of February, by which time the weather in Cairo is generally agreeable. The error generally committed by those who undertake the ascent of the Nile, is that of starting too soon; going up into a very warm climate, and then descending to a latitude in which considerable cold is felt in winter. This was the mistake into which we fell, and I cannot too seriously warn all who are ailing, carefully to avoid it.

"Before leaving Britain, the invalid should provide himself with clothing of two kinds; one, the ordinary attire of Britain, the other, such as is worn in hot countries; everything else may, and ought, to be laid in at Alexandria or Cairo. In either of these towns every article may be provided for making the voyage, not only in comfort, but luxuriously; and in either place servants may be got without difficulty. To take anything from England or Malta involves very great expense, and to hire servants in either place is not only very expensive, but is the source of more annoyance than can be conceived; for though the Egyptian servants are, perhaps, the basest rascals on the face of the earth, they are not so accomplished in villainy as the Italian or Maltese.

"Travelling is thoroughly understood by the Arab dragomen, and it may be performed as comfortably in Egypt as in England; no fears, therefore, of privation or roughing, need deter any one from making the voyage. The hotels in Cairo and Alexandria are very good, and for a family, or such as study economy and quiet, houses may now be procured in both towns. The English language is alone sufficient for the East, because most of the servants understand it; but, if Italian be spoken, the traveller's enjoyment will be greatly increased.

"Egypt should be left about the beginning or middle of March—circumstances, and the route to be taken on leaving, determining the precise time. If it be intended to return to England, the invalid should delay in Cairo or Alexandria till the middle of March, when he may leave for Malta with safety; but he ought not to proceed further north until the middle of April, unless he goes to Italy, and travels slowly through the Neapolitan and Roman states. Most persons who visit Egypt, however, make the tour across the desert to Syria, and, if circumstances permit, I would strongly advise all to perform it. The desert is full of interest; very different, indeed, from the idea usually entertained of it by Europeans; and as it forms the highway to a land associated with the earliest thoughts of every Christian, a journey through its wild and cheerless wastes greatly enhances the delight experienced at the first glimpse of the hills of Judea. To the invalid it possesses still other attractions. The climate is finer than that of Egypt, and the change of life there undergone, and the exercise which the traveller is obliged to take, are frequently of far more service in restoring health than any length of mere residence in any climate, and when improvement has already begun, there are few places better calculated to advance it.

"The journey across the desert may be accomplished as comfortably as the voyage on the Nile, and after a day or two, without the slightest fatigue. Last year numerous parties, and among the number many ladies, performed the trip, and all, without exception, bore testimony to the pleasure and benefit they derived from their wanderings.

"On leaving Egypt for Syria, there is a choice of routes, one a journey of thirty days, by Mount Sinai, Akaba, and Petra; the other, of twelve days, by El Arish and Gaza, on the south-east coast of the Mediterranean. To the invalid, I advise the longest, because, if improvement can be effected at all by climate, it must take place under the desert sky, and besides, it is the most interesting route. If he choose it, he ought to leave Cairo by the beginning of March, and thus enter Syria by the end of the month, leaving ample time for making the tour of Palestine, and being ready to sail from Beyrout to Marseilles by the steamer of the last week of April or first of May. By going to Marseilles, voyagers from the Levant now obtain free pratique in twenty-four hours, a comfort which those who have performed quarantine can appreciate. From Marseilles to England is a journey of four or five days, and in a few months, when part of the railways now constructing have been finished, will be much shorter.

"In bringing the above detached notices to a close, I would only express a hope, that no imaginary fears may deter medical men in recommending, or patients in adopting, the East as a residence and travelling ground during the winter. The annoyances to which the traveller is subjected are not very great, and are every day diminishing, and the expense of living and travelling is not greater than in other countries."

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93. *Influence of Seasons on Health.*—In order to appreciate the influence of the seasons on the public health, we must proceed on an extensive scale; and the only source from which information can be drawn, without danger of too great errors, is found in the movements of the populations of hospitals and infirmaries. Going on this principle, M. Casper, of Berlin, offers the results of observations made on 155,000 cases of recent diseases, comprised in a period of seven years, from 1833 to 1840, the most extensive table yet made public. These 155,000 patients at Berlin are thus distributed, according to the season:—Summer, 40,700; Winter, 39,024; Autumn, 37,865; Spring, 37,748. Hence it follows, that in Berlin the greatest number of patients is in the summer; the least in the spring; and the numbers in spring and autumn are about alike. If, then, that season which causes the least amount of disease be regarded as the most healthy, summer is at the bottom of the scale, while spring is at the top,—speaking here of Berlin. Looking to the months in which disease is most prevalent, January and August occupy the first rank; then follow, with little difference between them, July, April, September, June, February, March, November and October; lastly, May and December; the two last furnishing fewest cases. If, instead of taking the number

of patients as a criterion of the relative salubrity of the seasons, we seek to determine it by the proportional mortality in a given population, the results become notably changed, and summer does not appear so insalubrious. In fact, of 55,609 deaths in Berlin, in seven years, the proportion was 14·10 in 100 in autumn; 24·71 in spring; 24·87 in winter; in summer, 26·31. The month of August has always proved the most insalubrious and fatal. Comparing these results at Berlin with those derived from the official documents respecting the sanatary state of Paris and Philadelphia, we shall see that Paris, from 1819 to 1826, lost 189,126 inhabitants, and in the proportion of 28·63 in 100 in spring; 25·29 in winter; 23·44 in summer; and 22·61 in autumn; whilst the city of Philadelphia numbered, from 1811 to 1820, 23,486 deaths, in the proportion of 31·19 in 100 in summer; 23·75 in spring; 23·89 in autumn; and 21·15 in winter. Thus, the law established by Hippocrates, on the relative influence of the seasons, does not hold good universally. At Berlin and Philadelphia, the highest amount of mortality is in summer; but at Paris, in spring. On the other hand, the minimum mortality is at Paris and Berlin in autumn; whilst at Philadelphia it is in winter. Thus, we may suppose these differences to be partly traceable to locality, soil, water, and other conditions of climate. One cannot otherwise understand how the maximum mortality is at one season in one place, at another, in another. Further, as MM. Quetelet and Villermé have remarked, this maximum and minimum may vary in the same country at different epochs. It follows, from a table by M. Casper, that at Berlin, in the eighteenth century, the maximum mortality was in spring, as it now is in Paris; and again, the minimum was at Berlin, in that century, in winter, whereas it is now in autumn. Temperature stands foremost among the conditions which notably make the influence exercised by the seasons to vary. It results, from the researches of M. Casper, that every extreme of temperature, at either end of the scale, exercises a disastrous influence on human life; and this applies to all the seasons indifferently, and by the very fact of sudden variation. M. Casper believes that he has also arrived at the law, that at almost every season the augmentation of atmospheric pressure increases, whilst the diminution decreases, the ratio of mortality—i. e., that the mortality is directly as the pressure. The preceding facts are chiefly taken from Dr. Casper's valuable essay, published last year at Berlin, and entitled "Denkwürdigkeiten zur Medicinischen Statistik und Staatsarzneikunde."—*Lancet*, Sept. 11, 1847.

MISCELLANEOUS.

94. *Epidemic Cholera.*—This disease has, for the second time, invaded Europe, and, as on its first appearance in 1831–2, it threatens to spread over the whole globe The present epidemic manifested itself in Sept. 1845, at Bokhara and Samarcand, and in the same year, at a point diametrically opposite, at Bagdad, in which city, containing 80,000 inhabitants, from 400 to 450 died daily. The disease thence followed the course of the pilgrims to Mecca, and in November, 1845, advanced towards Teheran, one of the chief cities of Persia, but did not appear in that city till June, 1846. The patients there seized with it did not suffer, it is said, from cramps or vomitings, but fell into a kind of lethargy, accompanied with paralysis. All remedies were unavailing, and those seized died at the end of from three to eight hours. Not less than 300 died every day, and of 130,000 people in the city, 9000 fell victims to the scourge. The epidemic declining there, then directed its course through the districts of Schirmun, Kasbin, and Kaschan; and in August approached Tauris. and then Astrabad—always pursuing a westward course. At Tauris, the malady did not appear with so great severity; little was complained of by patients except vomiting and cramps, which were relieved by medicines. In its course through Persia, the cholera did not always follow the direction of the winds, nor that of the chief roads or valleys, but its march was irregular, and large tracts were passed over.

In October, 1846, the cholera showed itself in the region of the Caucasus, but in a very mild form; and on the 13th of May, 1847, appeared at Tiflis. In that city, from the 13th of May to the 24th of June, but sixty-seven persons died out of

164 attacked, and amidst a population of 6000. The lower classes, exposed to various depressing agents, were those who suffered.

In the middle of July, the cholera advanced to New Russia, about the mouths of the Don, where every preparation had been made by the Government against its approach. In August, the disease continued to rage in Tiflis, and advanced to Erzeroum, Kars, and Koutaïs, as well as to some parts of the Black Sea—viz., Batoum and Redout-Khalé. At Erzeroum the malady was very mild, but at Batoum more severe. In the Caucasus, the Russian army suffered greatly from its ravages, and it has lately carried off some of the chief commanders,—diminishing in some detachments, but increasing in others. The tables of mortality in New Russia state, that of 639 seized, 501 have died.

On the 9th of September, the cholera reached Trebizond: from that day to the 15th, the epidemic increased; but from the 15th to the 18th, it declined. About 300 cases occurred in this period, of which 103 died; and the sanatary physician of the city declares, that if the malady be treated early, ninety out of 100 may be saved. On the 4th of September, Erzeroum, which had suffered in July and August, began to be free from the disease, whilst it had again broken out at Bagdad, but not so severely as before, and by the last courier was announced to be on the decline.

During September, the cholera continued to rage in Southern Russia, assuming a severe form, and carrying off, as reported, whole villages, but had not passed beyond Charkow. Riga was said, but, it would seem, erroneously, to be visited by the epidemic. On October the 5th, the Russian official reports announced that the malady pursued its course northward and westward, and that some cases had occurred at Orel, at Toula, at Saratof, and as far as the village of Pensa, only fifty leagues from Moscow. In this, its north-western route through the province of Astrakan, and to the borders of Walachia, and Moldavia, 7248 persons had been seized, of whom 3342 had died—*i. e.*, from the close of August, until the middle of September. The last accounts from Russia, however, state that the malady is on the decline, and that few cases are now met with in Saratof, Woronesch, Tambof, and Kasan; but that there is a fresh outbreak in Persia, whence the epidemic tends to Asiatic Turkey. It is, also, reported that the cholera has shown itself at Perecop, about fifty miles from Odessa; but that it is declining in intensity at Trebizond, and has disappeared from Tangarok and Marcanopel, on the shores of the sea of Asoph.

Towards the close of September, it was announced that the cholera had arrived on the frontiers of Gallicia, and that some cases had occurred in Silesia and Moravia. It has been more recently stated, that a case had presented itself in one of the hospitals of Vienna; but this wants confirmation.

From the preceding account, based on official documents, the approach of the cholera to this country is rendered morally certain; it follows pretty much the same route as heretofore; it is seen to be unstayed by climate; penetrating, as it does, towards northern Russia; to vary in intensity, and even in character, at different places; to pass over tracts of country; and not to follow, except a general north-westward course, any direction favoured by the physical features of the country, or the direction of the winds.

Upon the whole, the career of the present epidemic does not appear to be so fatal as that of the last; and it would, also, seem to differ in some characters, although presenting in all that peculiar one—viz., excessive collapse.—*Lancet*, Nov. 6, 1847.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

A remarkable Case of Pervious Urachus in an Adult. Reported to the Medical Society of Va.—By ROBERT G. CABELL, M. D.

The urachus is a solid ligament proceeding from the fundus of the bladder, between the linea alba and the peritoneum, and extending to the umbilicus, where it is lost in the adjacent cellular tissues, and aponeurosis and umbilical vessels. This cord is continuous with the longitudinal muscular branches of the bladder, and it has also in its structure a continuation of the circular fibres of that organ. It is situated about midway in the space between the umbilical arteries, which, investing the sides of the fœtal bladder, pass upwards to the umbilicus, and there unite. The peritoneum is reflected over these vessels, and when the urachus is put on the stretch, it is drawn into a fold of a falciform appearance. Bichat regards the urachus as a suspensory ligament of the bladder. It is of a conical shape, and, according to Cruveilhier, it is often found large at first, and then, after two or three inches, blending with the left umbilical artery.

In the fœtus of quadrupeds, the urachus is a large tube, transmitting urine from the bladder to the allantois, a bag between the chorion and amnion, having some connection with the nutrition of the fœtal animal. Opinions on this subject are, however, uncertain and hypothetical. In the human species it is a mere anatomical vestige of the canal of quadrupeds, and it is almost invariably found solid and *impervious*. Cruveilhier always found it solid, both in adults and the fœtus, and when found hollow, Bichat and all anatomists regard it as preternatural. Some very rare cases are recorded in which it is hollow, and when so, according to Sabatier, there is generally a congenital malformation and obliteration of the urethra. It thus appears that very few cases are met with, or are on record, where this cord is pervious, and such a malformation in adults may probably never be seen by anatomists who spend their lives in dissecting the human body. A remarkable instance of the above malformation and congenital defect lately fell under my observation.

On June 10th, 1847, I was requested by Dr. Hodges, of this city, to examine with him and Dr. Walk, of Chesterfield county, what was considered as an extraordinary *lusus naturæ.* The subject was a mulatto girl, of about 14 or 15 years of age, well grown, healthy, and of very handsome appearance. The navel presented a flattened, disk-like appearance, about the size of a shilling. The skin about it was loose, and in folds, but not so much so as to attract particular attention to it as a deviation from the ordinary formation. In the centre was a small aperture of the usual appearance, through which, when in the recumbent posture, she could pass her urine, and which, she said, she had done from her childhood and earliest recollection, at pleasure. Her urine was, however, passed, she observed, through the natural channel.

I then passed a small gum-elastic catheter through this umbilical orifice, which very readily passed, in a canal in the direction of the bladder, for six or seven inches, and when the wire was withdrawn, a fluid, evidently urine in odour and colour, passed through the instrument. I then passed the same instrument in the urethra, which was rather smaller than usual, and urine, of the same physical properties as that from the umbilicus, was discharged through the catheter, showing that the two canals communicated with the bladder.

The girl, who presented a very neat and cleanly appearance, said that she experienced no uneasiness or inconvenience from this unnatural passage to her bladder, and, as said above, she could, at her pleasure, evacuate her urine by either channel.

Treatment of Chronic Lippitudo. By Isaac Hays, M. D., Surgeon to Wills Hospital.—Ophthalmia tarsi is generally a manageable disease, but occasionally cases are met with in which the affection, in consequence of neglect or bad management, has persisted for years,—the lids have become puffy, their lining membrane thickened and villous, causing more or less eversion (*ectropium*), their edges raw and sometimes ulcerated, the ciliæ irregular and scanty, or entirely lost; with photophobia, lachrymation, &c. Two such cases came under our charge during our recent service at Wills Hospital, and as they had resisted the usual remedies, I was induced to try the alternate application of tincture of iodine, and the solid sulphate of copper, at intervals of three days. The external surface of the lids was painted with the former; and three days afterwards the latter was freely applied over the thickened conjunctiva. Under this treatment both cases, one of them of 12 or 14 years continuance, have recovered, and we are induced to communicate the circumstance in hopes that this course may prove equally useful in the hands of others.

Vaginal Hysterotomy. Prof. G. S. Bedford, of New York, writes us:—I have recently been called to an extremely interesting case of midwifery, by my colleague Dr. Mott, and Dr. Clinton. The lady had been in labour 30 hours before I saw her. The womb was contracting with great energy, and neither Drs. Mott nor Clinton could detect the slightest vestige of an *os tincæ*. There was imminent danger of the patient's life. At the request of the above named gentlemen, I laid the womb open through the vagina, first making a bi-lateral section of the organ, and afterwards an incision through the anterior and posterior lips. The head was then distinctly felt, but very slight progress ensued. We waited twenty-four hours longer, the head still at the superior strait, the patient's strength much exhausted, and everything looking unpromising. I applied the forceps, and delivered the lady of a living child. Five weeks have now elapsed, and both are perfectly well.

This is the *second* time I have performed the operation of *vaginal hysterotomy*, and in both instances for absence of the *os tincæ*, and in each case both mother and child were saved. As far as I know, they are the only cases which have occurred in this country. My first case was in Dec. 1843, and was witnessed by Drs. Washington, Delmote, Doane, and others, and was published that year in the *New York Journal of Medicine*."

Prof. Bedford promises to send us a full report of this case.

DOMESTIC SUMMARY.

Foreign Bodies in the Air-Passages.—Dr. J. Mason Warren records, in the *Boston Medical and Surgical Journal*, (Dec. 15th, 1847,) four interesting cases of foreign bodies in the air-passages; and gives the following conclusions deduced from a review of these and similar recorded cases.

"1st. It is unsafe to trust to the chance of spontaneous expulsion, any substance, which is liable to have an increase of bulk from the heat and moisture of the human body; as in all probability the swelling of this substance will render its exit impossible. This is still more true as regards children, from the comparatively small size of the larynx.

"2d. Metallic substances, or those not embraced under the preceding head, when engaged in the larynx, or lodged in the lungs, may be trusted with more impunity. If flat, they naturally present an edge to the tube, so as to permit the passage of air on either side. When lodged in the bronchus, such a substance becomes after a time enveloped in mucus, so as to obstruct the free act of respiration; it is then forced upwards, and in the struggle which ensues, the mucus is disengaged. The body then falls back, and remains quiescent until it again becomes covered with mucus, when the process of dislodgment is repeated. Sometimes, in the violent cough which occurs at the change of place of this body, it is forced out into the mouth and swallowed, or ejected; at others, by coming up suddenly, when the patient's attention is distracted, it takes the larynx, as it were, by surprise, and easily escapes.

"An interesting case of this latter class occurred in a little girl, a patient of Dr. Hale, in whom tracheotomy was performed by Dr. J. C. Warren, for the removal of the wooden stopper of an inkstand, which had been sucked into the trachea. As soon as this passage was opened, all irritation subsided, the foreign substance settled down into the bronchus, and although the wound was kept open a week, and attempts made to dislodge it, they were without avail. Some months afterwards, as the patient was looking out of a window, very intently watching the passing of a military company, the substance came up without effort into the mouth, and was at once expelled.

"3d. If the substance is fixed in the bronchus, and the patient young, the prospect of seizing it by instruments introduced through the wound, and carried down in the direction of the lungs, is extremely small. In fact I do not know of a single successful case upon record, with the exception of one, in which Mr. Liston opened the trachea of an adult, and introducing the forceps with some difficulty, seized a bone, which had become engaged in the right bronchus.

"4th. Some doubts will arise, however, as to the propriety of leaving in any case a foreign substance for a period of time in the lungs, without an effort to remove it. For although it may finally become detached and be ejected, as it frequently is, after remaining many months or years imbedded in the substance of the lungs, or stowed away in the bronchial tubes, yet fatal organic lesions are not uncommonly the result. The judgment of the surgeon must therefore be determined by the circumstances of the particular case.

"It is remarkable in how great a number of these cases, which we find recorded as having occurred in children, the substance introduced was a common garden bean. Dr. Twitchell, of Keene, N. H., in the *New England Quarterly Journal of Medicine and Surgery*, mentions two instances, in which he operated with success. Many of a similar character may be found, by looking through the different periodicals.

"Should another case of this kind occur to me, I should at once perform the operation of tracheotomy, and by a free use of ether, attempt to allay the irritability of the air-passages, so as to allow a more easy exploration by instruments, than is generally afforded in the natural state."

Application of the Nitrate of Silver to the Larynx in Croup.—Dr. Charles Ware records, in the *Boston Med. and Surg. Journ.*, (Dec. 22d, 1847,) a case of membranous croup successfully treated by the application of a solution of nitrate of silver (one drachm of the salt in one ounce of water) to the larynx by means of a piece of sponge attached to a whalebone staff. The disease, in this case, was obviously limited to the trachea, if not to the larynx, and, in this respect, was peculiarly favourable for this treatment.

Dr. Blakeman has also recorded, in the *New York Journ. of Med.*, (March, 1847,) two cases of membranous croup successfully treated by the same means.

Chloride of Gold in Granular Lids.—Dr. W. Clay Wallace recommends (*Boston Med. and Surg. Journ.*, Nov. 3) a solution of six or eight grains to an ounce of water as vastly superior to the nitrate of silver for the cure of chronic granular lids; in recent cases, he says, it is inferior to the first mentioned application.

Traumatic Tetanus cured by Strychnine.—Dr. P. M. Kollock relates, in the *Southern Medical and Surgical Journal*, (Oct., 1847,) a case of traumatic tetanus, occurring in a negro girl, which terminated favourably under the use of strychnine, in the dose of $\frac{1}{12}$th of a grain every two hours.

Rigidity of the Os Uteri treated by Injections of Belladonna.—Dr. A. H. Cenas records, in the *New Orleans Med. and Surg. Journ.*, Nov. 1847, four cases of rigidity of the os uteri, in which he administered a watery solution of the extract of belladonna by injection into the vagina with advantage. Dr. C. thinks, that the want of success which some practitioners have met with, is owing to their mode of using it. He says, to secure the direct contact of the article, a watery infusion of the extract should be applied by means of an ordinary vagina syringe.

Dr. Joseph Eve, of Georgia, recommends the same practice.

Ether Inhalation in Intermittent Fever.—It is stated, in the *Illinois and Indiana Med. and Surg. Journ.*, (Oct. and Nov., 1847,) that Mr. J. W. Freer, a pupil in the Chicago Hospital, has employed ether in intermittent fever, "with the most delightful results." "Two or three inhalations invariably arrested the paroxysm *instantaneously* during the cold stage, brought on diaphoresis, and in cases where there was no unusual exertion, the paroxysms have not returned."

Statistics of the Medical College of the United States.—The following table, compiled from the published catalogues, exhibits the number of students and graduates, in most of the Medical Schools in the United States, for the Session 1846–7. We regret that there are several blanks in the table, which we are unable to fill, some schools having failed to furnish us with their catalogues.

Medical Schools.	Students.	Graduates.
University of Pennsylvania,	411	163
Transylvania University,	205	64
Harvard University, Boston,		
College of Physicians and Surgeons, N. Y.,	194	51
Medical Department University of the City of N. Y.,	410	123
Ohio Medical College,	170	53
Medical Institution of Geneva College,	158	43
Med. Dep. of Willoughby College, (Cleveland, Ohio,)	160	
Albany Medical College,	100	32
University of Louisville,	349	75
Western Reserve College,	216	
Franklin Medical College,	17	5
Pennsylvania Medical College,	95	33
Jefferson Medical College,	492	177
Rush Medical College, (Chicago,)	70	16
University of Maryland.		
Medical College of Georgia,	106	33
Med. Dep. Hamp. Sidney College,	75	17
Med. College, State of South Carolina,	204	74
Med Dep. Univ., Missouri, (St. Louis,)	102	28
Indiana Medical College, (Laporte,)	104	19
Berkshire Medical Institution,		42
Medical College of Louisiana,	166	27
Medical School of Maine, (Brunswick.)		
Vermont Medical College, (Woodstock,)	96	
Yale Medical College,		28
Castleton Medical College,	131	42
Memphis Medical College,	55	
New Hampshire Medical School, (Hanover.)		
Buffalo Medical College,	67	17
Washington Medical College, Baltimore.		
Med. Dep. Columbian College, (Washington.)		
Med. Dep. St. Louis University, (St. Louis,)		13
Med. Department of Illinois College,	39	13

THE

AMERICAN JOURNAL

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MEDICAL SCIENCES.

CONTRIBUTORS TO THIS VOLUME.

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Charles R. King, M. D., *of Philadelphia.*

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James D. Trask, *of Brooklyn, N. Y.*

W. W. Valk, M. D., *of Flushing, L. I.*

J. Mason Warren, M. D., *one of the Surgeons of the Massachusetts General Hospital.*

John Watson, M. D., *Surgeon to the New York Hospital.*

TO READERS AND CORRESPONDENTS.

Dr. J. M. Sims' Paper on Trismus Nascentium shall appear in our next Number.

The following works have been received:—

On Disorders of the Cerebral Circulation, and on the Connection between Affections of the Brain and Diseases of the Heart. By GEORGE BURROWS, M. D., &c. &c. With coloured plates. Philadelphia, Lea & Blanchard, 1848.

On the Theory and Practice of Midwifery. By FLEETWOOD CHURCHILL, M. D., &c. &c. With Notes and Additions, by R. M. HUSTON, M. D., &c. Third Amer. edition, revised and improved by the Author. With 128 Illustrations from drawings by Bagg and others, engraved by Gilbert. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

The Human Brain: its Structure, Physiology and Diseases. With a Description of the Typical forms of Brain in the Animal Kingdom. By SAMUEL SOLLY, F. R. S., Senior Assistant Surgeon to St. Thomas' Hospital, Lecturer on Clinical Surg., &c. &c. From the Second London Edition, with 118 wood engravings. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

On Poisons, in Relation to Medical Jurisprudence and Medicine. By ALFRED S. TAYLOR, F. R. S., Lecturer on Medical Jurisprudence and Chemistry in Guy's Hospital, and Author of Medical Jurisprudence. Edited with notes and additions, By R. EGLESFELD GRIFFITH, M. D., &c. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

Principles of Physics and Meteorology. By J. MULLER, Prof. of Physics at the University of Freiburg. First American Edition, Revised, and Illustrated with 538 engravings on wood, and two coloured plates. Phila., Lea & Blanchard, 1848. (From the Publishers.)

A Practical Treatise on the Causes, Symptoms, and Treatment of Spermatorrhœa. By M. LALLEMAND, formerly Prof. of Clinical Surgery at the University of Montpellier. Translated and Edited by HENRY MCDOUGALL, M. R., C. S. Phila., Lea & Blanchard, 1848. (From the Publishers.)

Etherization, with Surgical Remarks. By JOHN C. WARREN, M. D., Emeritus Prof. of Anatomy and Surgery, Univ. of Cambridge, &c. &c. Boston, William D. Ticknor & Co., 1848. (From the Author.)

A Descriptive Catalogue of the Anatomical Museum of the Boston Society for Medical Improvement. By J. B. S. JACKSON, M. D., Curator of the Museum, Prof. of Pathological Anatomy in Harvard University. Boston, 1847. (From the Society.)

History, Description and Statistics of the Bloomingdale Asylum for the Insane. By PLINY EARLE, M. D., Physician to the Institution, &c. &c. New York, 1848. (From the Author.)

Anniversary Discourse before the New York Academy of Medicine. Delivered in the Broadway Tabernacle Nov. 10th, 1847. By JOHN W. FRANCIS, M. D. Published by order of the Academy. New York, 1847. (From the Author.)

Remarks on the Superinduction of Anæsthesia, in Natural and Morbid Parturition: with Cases Illustrative of the Use and Effects of Chloroform in Obstetric Practice. By J. Y. SIMPSON, M. D., F. R. S. E., Prof. of Med. in the University of Edinburgh. With an Appendix. Boston, William B. Little & Co., 1848. (From the Publishers.)

Memoir on the Reproduction of the Opossum. Didelphis Virginiana. By CHARLES D. MEIGS, M. D. Extracted from Trans. Amer. Philosophical Society. (From the Author.)

A Guide to the Examination of the Urine in Health and Disease, for the use of Students. By ALFRED MARKWICK, Surgeon to Western German Dispensary, &c. London, John Churchill, 1847. (From the Author.)

A Description of the Structure and Functions of the Human Skin; to which are added some Practical Remarks on the Uses and Applications of the Impermeable Spongio Piline, and Impermeable Piline. By ALFRED MARKWICK, Surgeon to the Western German Dispensary. London, 1847. (From the Author.)

The Dublin Dissector, or System of Practical Anatomy. By Robert Harrison, M. D., M. R. I. A., Prof. of Anatomy and Surgery in the University of Dublin, &c. &c. Fifth Edition, with numerous illustrations. Dublin, Hodges & Smith. New York, Wiley & Putnam, 1847. (From the Publishers.)

On the Causes and Treatment of Abortion and Sterility; being the result of an extended practical inquiry into the Physiological and Morbid Conditions of the Uterus, with reference especially to Leucorrhœal Affections and the Diseases of Menstruation. By James Whitehead, F. R. C. S., Surgeon to the Manchester and Salford Lying-in Hospital. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

Principles and Practice of Surgery. By the late George McClellan, M. D. Edited by his son, John H. B. McClellan, M. D. Phila., Grigg, Elliot & Co., 1848. (From the Publishers.)

A New Medical Directory, containing an explanation of the terms in Anatomy, Human and Comparative, Physiology, Practice of Medicine, Obstetrics, Surgery, Therapeutics, Materia Medica, Pharmacy, Chemistry, Botany, Natural Philosophy, with the formulas of the Principal Pharmacopœias, and valuable practical articles on the Treatment of Diseases. On the Basis of Hooper and Grant. Adapted to the Present state of Science, and for the use of Medical Students, and the Profession. By D. Pereira Gardner, M. D., Prof. of Chemistry and Med. Jurisprudence in Phila. Col. of Medicine, &c. &c. New York, Harper & Brothers, 1847. (From the Editor.)

Elements of the Principles and Practice of Midwifery. By David H. Tucker, M. D., Prof. of Princ. and Pract. Med., and formerly Prof. of Obstetrics in Franklin Medical College: with numerous illustrations. Phila., Lindsay & Blakiston, 1848. (From the Publishers.)

Discourses on Medical Education, and on the Medical Profession. By John Ware, M. D., Hersey Prof. of Theory and Practice of Physic in the University of Cambridge. Boston, 1848. (From the author.)

On Paracentesis Thoracis as a Curative Measure in Empyema and Inflammatory Hydrothorax. By Hamilton Roe, M. D., Oxon., &c. &c. From 27th Vol. Medico-Chirurgical Transactions. London, 1844.*

A Synopsis of the Course of Lectures on General and Human Physiology, in the New Hampshire Med. Institution. (Dartmouth College.) By E. R. Peaslee, A. M., M. D., Prof. of Anatomy and Physiology. Hanover, 1848. (From the Author.)

Petition of the American Statistical Association for a Sanitary Survey of the State of Massachusetts. (From Dr. E. Jarvis, Chairman of the Committee on the Sanitary Survey.)

Report of the Board of Trustees of the Massachusetts General Hospital, presented to the Corporation: at their annual meeting, Jan. 26, 1848. Boston, 1848. (From Jacob Bigelow, M. D.)

Report of the Pennsylvania Hospital for the Insane, for the year 1847. By Thomas S. Kirkbride, M. D., Physician to the Institution. Phila., 1848. (From the Author.)

Twentieth Annual Report of the President and Directors of the Western Asylum, to the Legislature of Virginia, with the Report of the Superintendent and Physician for 1847. Richmond, 1848.

Annual Report of the Inspectors of Mount Pleasant State Prison, to the Legislature of New York. Jan. 6th, 1848. (From Dr. T. R. Beck.)

Twenty-ninth Annual Report of the New York Institution for the Instruction of the Deaf and Dumb, made to the Legislature, January 28th, 1848. Albany, 1848. (From T. R. Beck.)

Transactions of the Medical Society of the State of New York. Vol. VII., Pl. 2. Albany, 1848. (From the Society.)

Two Addresses before the Medical Society of the State of N. York. In session at Albany, February 1 and 2, 1848. By THOMAS W. BLATCHFORD, A. M., M. D., President of the Society. Published by order of the Society. Albany, 1848.

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* This pamphlet, with the note which accompanied it, dated London, April 28th, 1846, has only just come to hand. Had our correspondent transmitted his communication through John Miller, Henrietta Street, Covent Garden, London, it would have reached us in twenty days.

A Lecture on Atresia Vaginæ. By N. HARD, M. D., Prof. of Obstetrics, &c. in Indiana Med. College. Published by the Class. (La Porte, 1848.)

The Obstetrical Remembrancer, or Denman's Aphorisms on Natural and Difficult Parturition; the Application and Use of Instruments, &c. &c.: augmented by MICHAEL RYAN, M. D. First American, from the Ninth London Edition; with additions by THOMAS F. COCK, M. D., &c. New York, S. S. & W. Wood, 1848. (From the Publishers.)

Memoranda of Anatomy, Surgery, and Physiology. Forming a Pocket Companion for the young, or for Students preparing for examination. By MARK NOBLE BOWER, Surgeon. Corrected and Enlarged by an American Physician. N. York, S. S. & W. Wood, 1848. (From the Publishers.)

The Young Stethoscopist; or, the Student's Aid to Auscultation. By HENRY J. BOWDITCH, M. D., One of the Physicians of Mass. Med. Hospital. Second edition. New York, S. S. & W. Wood, 1848. (From the Publishers.)

Objections to the Theories severally of Franklin, Dufay, and Ampere, with an effort to explain Electrical Phenomena, by Statical or Undulatory Polarization. By ROBERT HARE, M. D., Emeritus Prof. of Chemistry in Univ. of Pennsylvania. (From the Author.)

The treatment and cure of Cretins and Idiots; with an account of a visit to the Institution of the Abendberg, Canton of Berne, Switzerland, during the Summer of 1846. By BUCKMINSTER BROWN, M. D. Republished from "The American Journal of the Medical Sciences." Boston, W. D. Ticknor & Co., 1847. (From the Author.)

Oration on the Life, Character and Services of TRISTRAM THOMAS, M. D., Delivered in Easton, Maryland, on August 28th, 1847, at the request of the Medical Faculty of Talbot Co., Maryland. By CHRISTOPHER C. COX, A. M., M. D. Baltimore, 1847. (From the Author.)

Researches on Meteorology. By BENNETT DOWLER, M. D. Reprinted from the New Orleans Medical and Surgical Journal for Jan. 1848. New Orleans, 1848. (From the Author.)

Foreign Bodies in the Air Passages. By J. MASON WARREN, M. D. Boston, 1848. (From the Author.)

General Abstract of the Bill of Mortality for the City of Boston, from Jan. 1, 1847, to Jan. 1, 1848, agreeably to the Records kept at the Health Office. (From Dr. E. JARVIS.)

Lecture Correlative to a Course on Surgery, in the University of Pennsylvania: Embracing a Short Account of Eminent Belgian Surgeons, Physicians, &c. &c. Delivered Dec. 22, 1847, by WILLIAM GIBSON, M. D., Prof. of Surg. Phila., 1848. (From the Author.)

A Lecture Introductory to the Course on the Theory and Practice of Medicine in the University of New York. By SAMUEL H. DICKSON, M. D., Prof. of Theory and Pract. Med. New York, 1847. (From the Author.)

An Address on the Bonds of Professional Union, delivered before the Medical Association of Adams, Brown and Clermont Cos., Ohio, at Batavia, Oct. 30, 1847. By JOHN P. HARRISON, M. D., Prof. of Theory and Pract. Med. in Med. Col., Ohio. Cincinnati, 1847. (From the Author.)

A Lecture Introductory to a Course of Obstetrics, and the Diseases of Women and Children. By GUNNING J. BEDFORD, M. D., Prof. of Obstetrics, and Diseases of Women and Children in University of New York. New York, 1847. (From the Author.)

Strictures on some of the Defects and Infirmities of Intellectual and Moral Character in Students of Medicine: an Introductory Lecture, delivered in the University of Louisville, Nov. 1, 1847. By DANIEL DRAKE, M. D., Prof. of Pathology and Practical Medicine. Published by the Class. Louisville, Ky., 1847. (From the Author.)

Introductory Lecture, delivered in the Philadelphia College of Medicine, Session 1847–48. By JAMES MCCLINTOCK, M. D., Prof. of Anatomy and Surgery. Published by Class. Philadelphia, 1847. (From the Author.)

Introductory Lecture delivered at the Winter Session of Philadelphia College of

Medicine, Nov. 1847. By JESSE R. BURDEN, M. D., Prof. of Materia Medica and Therapeutics. Philadelphia, 1847. (From the Author.)

An Introductory Lecture to the Course on Surg. in the Indiana Med. College, Session 1847–48. By A. B. SHIPMAN, M. D., Prof. of Surgery. La Porte, 1848. (From the Author.)

An Introductory Lecture, delivered to the Class of Institutes of Medicine in Jefferson Medical College, November 4th, 1847. By ROBLEY DUNGLISON, M. D. Philadelphia, 1847.

Lecture Introductory to a Course on the Principles and Practice of Surgery in the Jefferson Medical College, delivered Nov. 1, 1847. By THOMAS D. MUTTER, M. D., Prof. of Surgery. Philadelphia, 1847.

Lecture Introductory to the Course on the Practice of Medicine in the Jefferson Medical College, delivered Nov. 2, 1847. By J. K. MITCHELL, M. D., Prof. of Pract. Medicine, &c. Philadelphia, 1847.

Memoir of GEORGE MCCLELLAN, M. D. A Lecture Introductory to the Course of the Theory and Practice of Physic, in the Med. Department of Penn. College, for the Session of 1847–48. By W. DARRACH, M. D. Phila., 1847. (From the Author.)

The Twenty-seventh Annual Report of the Bloomingdale Asylum for the Insane. By PLINY EARLE, M. D., Physician to the Asylum. New York, 1848. (From the Author.)

Annual Report of the Trustees of the State Library. Made to the Legislature Jan. 15th, 1848. Albany, 1848. (From Dr. T. R. BECK.)

Twelfth Annual Report of the Managers of the New York Institution for the Blind, [to the Legislature.] (From Dr. T. R. BECK.)

Twenty-ninth Annual Report of the New York Institution for the Instruction of the Deaf and Dumb, made to the Legislature Jan. 29th, 1848. Albany, 1848. (From Dr. T. R. BECK.)

Report of the Board of Visitors and Superintendent of the Boston Lunatic Hospital, for 1847. Boston, 1848. (From Dr. C. H. STEDMAN.)

Report of Scientific Investigations Relative to the Chemical Nature of Saccharine Substances, and the Art of Manufacturing Sugar. Made under the directions of Prof. A. D. BACHE, by Prof. R. S. MCCULLOCH.

Fifteenth Annual Report of the Trustees of the State Lunatic Asylum at Worcester. Dec., 1847. (From Dr. E. JARVIS.)

Sixth Annual Report to the Legislature, Relating to the Registry and Returns of Births, Marriages and Deaths, in Massachusetts. For the year ending April 30, 1847. By JOHN G. PALFREY, Secretary of Commonwealth. Boston, 1847. (From Dr. E. JARVIS.)

An account of a Compound Achromatic Microscope, made by CHARLES A. SPENCER of Canastota, New York. By C. R. GILMAN, M. D., Prof. of Obstetrics, &c., in the College of Phys. and Surgeons, New York. New Haven, 1848. (From the Author.)

Annual Catalogue of the Medical Department of the University of Louisville, Session 1847–48, and Circular for the ensuing Session. Louisville, 1848.

Catalogue of the Medical Department of Transylvania University, for Session of 1847–48, with a list of the Graduating Class; and also the announcement for the Session of 1847–48. Lexington, 1848.

A Catalogue of the Medicinal Plants, Indigenous and Exotic, growing in the State of New York, with a Brief Account of their Composition and Medical Properties. By CHARLES A. LEE, M. D., Prof. of Materia Medica, &c. New York, 1848. (From the Author.)

Fifth Annual Report of the Managers of the State [N. York] Lunatic Asylum. Albany, 1848. (From Dr. BRIGHAM.)

Report of the Board of Inspectors of the Western Penitentiary of Pennsylvania, for the year 1847, with the accompanying Documents. Pittsburgh, 1848.

Proceedings of the Medical Convention of the State of Alabama, held in Mobile Dec., 1847. Mobile, 1848. (From Dr. A. LOPEZ.)

Catalogue of the Trustees, Officers, and Students of the Univ. of Pennsylvania, Session 1847–48. Philadelphia, 1848.

The following Journals have been received in exchange:—

Revue Médicale Francaise et Etrangere, Journal des Progrès de la Médecine, Hippocratique. PAR. J. B. CAYOL, M. D., P., &c. &c. March, April, May, June, July, Aug., Sept., Oct., 1847.

Gazette Médicale de Paris. April, May, June, July, Aug., Sept., Oct., Nov., 1847.

Journal des Connaissances Médico-Chirurgicales. December, 1846. Jan., Feb., March, April, May, June, July, Aug., Sept, Oct., Nov., 1847.

Journal de Médecine et de Chirurgie Pratiques. Par LUCAS CHAMPIONNIERE, M. D., P., &c. Nov., Dec., 1846. Feb., March, April, May, June, July, August, Sept., Oct., Nov., 1847.

Journal des Connaissances Médicales Pratiques et de Pharmacologie. April, May, June, July, Oct., Nov., Dec., 1847.

Annales de Thérapeutique Médicale et Chirurgicale et de Toxicologie Publices, par M. le Docteur Rognetta. May, June, July, Aug., Sept., Nov., 1847.

Journal de Pharmacie et de Chimie, par MM. Boullay, J. P. Boudet, Bussy, Soubeiran, Henry, F. Boudet, Cap Boutron-Charlard, Fremy et Cuibourt, Contenant le Bulletin des Travaux, de la Société de Pharmacie de Paris, et de la Société d'Emulation, et suivi d'un Compte Rendus des Travaux de chimie, par M. CHARLES GERHARDT. Nov., Dec., 1846. Jan., Feb., March, April, May, June, July, Aug., Sept., Oct., Nov., 1847.

Annales Médico-Psychologiques, Journal de l'Anatomie, de la Physiologie et de la Pathologie du Système Nerveux. Par les Docteurs BAILLARGER, CERISE et LONGET. Nov., 1846. Jan., March, May, July, Sept., Nov., 1847.

Revue Médico-Chirurgicale de Paris, sous la direction de M. MALGAIGNE. Nov., 1847.

Zeitschrift für die Gesammte Medicin, mit bosonderer Rüchsicht auf Hospitalpraxis, und ausländische Literatur. Herausgegeben von F. W. OPPENHEIM. June, July, Aug., Sept., Oct., Nov., 1848.

Adolph Henke's Zeitschrift für die Staatsarzneikunde fortgesetzt. Von Dr. A. SIEBERT, 36 Erganzungsheft. 53 Bd. 3 and 4 heft, 55 Bd. 1 heft.

The London Medical Gazette. Nov., Dec., 1847, Jan., 1848.

Provincial Medical and Surgical Journal. Edited by R. J. N. STREETEN, M. D., and W. H. RANKING, M. D. Dec., 1847, Jan., Feb., 1848.

Dublin Medical Press. Dec., 1847, Jan., Feb., 1848.

Medical Times. Dec., 1847, Jan., Feb., 1848.

Monthly Journal and Retrospect of Medical Science. Jan., Feb., March, 1848.

Half Yearly Abstract of the Medical Sciences. Edited by W. H. RANKING, M. D. July, Dec., 1847.

The British and Foreign Medico-Chirurgical Review. Jan., 1848.

The Edinburgh Medical and Surgical Journal. Jan., 1848.

The Retrospect of Medicine: being a Half-Yearly Journal, containing a Retrospective View of every Discovery and Practical Improvement in the Medical Sciences. Edited by W. BRAITHWAITE, Lecturer on Obstetric Med. Vol. XVI. July, Dec., 1847.

The British American Journal of Medical and Physical Science. Edited by ARCHIBALD HALL, M. D., &c. &c. Jan., Feb., March, 1848.

Southern Medical and Surgical Journal. Edited by PAUL F. EVE, M. D. Jan., March, 1848.

Boston Medical and Surgical Journal. Edited by J. V. C. SMITH, M. D. Jan., Feb., March, 1848.

The Western Journal of Medicine and Surgery. Edited by Drs. DRAKE, YANDELL, and COLESCOTT. Jan., Feb., 1848.

The Medical Examiner and Record of Medical Science. Edited by R. M. HUSTON, M. D., &c. Jan., Feb., March, 1848.

The Western Lancet and Medical Library. Edited by L. M. LAWSON, M. D., &c. Dec., 1847.

The Charleston Medical Journal and Review. Edited by Drs. GAILLARD and DE SAUSSURE. Jan., March, 1848.

The American Journal of Pharmacy, published by authority of the Philadelphia

College of Pharmacy. Edited by Joseph Carson, M. D., Prof. of Materia Medica, &c. Jan., 1848.

The Annalist, a Record of Practical Medicine, in the City of N. York. Edited by Wm. C. Roberts, M. D. Jan., Feb., March, 1848.

The American Journal of Insanity. Edited by the officers of the N. York State Lunatic Asylum, Utica. Jan., 1848.

The Western Lancet and Hospital Reporter. Edited by Drs. Lawson and Harrison. Jan., Feb., 1848.

Buffalo Medical Journal and Monthly Review of Medical and Surgical Science. Edited by Austin Flint, M. D. Jan., Feb., March, 1848.

St. Louis Medical and Surgical Journal. Edited by Dr. M. L. Linton, and Wm. M. McPheeters. Jan., Feb., March, 1848.

The Missouri Medical and Surgical Journal. Edited by Drs. Thomas Barbour and A. J. Coons. Jan., Feb., March, 1848.

The New Orleans Medical and Surgical Journal. Edited by Drs. Wm. M. Carpenter, E. D. Fenner, J. Harrison, and A. Hester. Jan., March, 1848.

Illinois and Indiana Medical and Surgical Journal. Edited by Drs. Blaney, Brainard, Herrick, and Evans. Dec., 1847, Jan. 1848.

The American Journal of Science and Arts. Conducted by Profs. B. Silliman and B. Silliman Jr., and James D. Dana. Jan., March, 1848.

The American Journal and Library of Dental Science. Edited by Drs. Harris and Westcott, and Mr. Dwinelle. Jan., 1848.

The Literary World. A Gazette for Authors, Readers, and Publishers. Jan., Feb., March, 1848.

The Dental Intelligencer and Record of Theoretical and Practical Dentistry. Jan., 1848.

The South Western Medical Advocate. Edited by J. C. Cross, M. D., &c. Oct., Nov., 1847.

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THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

FOR APRIL, 1848.

Art. I.—*Operation for Fissure of the Soft and Hard Palate, with the result of Twenty-four Cases.* By J. Mason Warren, M. D.

In a paper published in the *New England Medical and Surgical Journal*, for 1843, and republished in this Journal of the same year, I gave the result of fourteen cases of fissure of the soft and hard palate, treated by a new operation. Previous to this proposal, all those cases which presented an extensive fissure in the bones, were either rejected as irremediable, or, if an operation was attempted, the proceeding of Roux adopted. In the latter, the soft palate, the only part which had its deformity remedied, was cut away transversely from the posterior border of the ossa palati, and then stretched across the opening, still leaving a considerable aperture in the roof of the mouth, to be closed by an obturator.

Krimer has, indeed, described a single operation performed by him, for closing an aperture in the bony palate, after staphyloraphy, consisting in the dissection of two flaps of the mucous membrane, commencing at a short distance from the margin of the opening, reversing them, and having brought them together in the median line, confining them by sutures. Roux has also suggested the loosening of the mucous membrane from the bones, at the angle of the fissure, where the ossa palati are implicated, so as to allow the more easy approximation of the soft parts. But in his last published cases, reported in the *Gazette Médicale de Paris*, for July, 1842, he does not appear to have put this plan into execution.

In our own country, we find that Dr. Mettauer, of Virginia, and Drs. Mütter and Pancoast, of Philadelphia, have given great attention to this subject, and suggested some important improvements in closing apertures in the bony palate. No method, however, I believe, has been before proposed, by which both the fissure in the soft and hard palate could be relieved by a single operation.

The method of proceeding originally proposed by myself, was as follows:—First, where the bones composing the arch of the palate were divided, to dissect off the mucous membrane covering them, on each side, as far back as the alveolar processes, if necessary, stretching it across the fissure, and confining it in this situation by sutures; the flaps, it must be understood, being made continuous with the fissured halves of the soft palate.

Second, in the above cases, and, in fact, in all where the lateral halves of the soft palate are too small to be easily brought in contact, as generally happens where the bones are involved, to cut away the posterior pillar of the palate with strong curved scissors, and continue the dissection behind the soft palate, until the latter yields, and allows itself to be drawn across the chasm, which, by the above proceeding, will be found practicable, even in those fissures which at first do not seem to offer the slightest hopes for a successful operation.

The advantages to be derived from this second proposition, namely, the division of the posterior pillar of the palate, are so important, that the steps for effecting this object will now be given. The uvula being seized with a pair of hooked forceps, and the velum made tensé, with a long pair of powerful scissors, curved on the flat side, the posterior pillar is excised, when the soft parts in front will be found to yield. If necessary, a second and third cut may be made, when the portion which at first offered violent resistance, will be found to hang flaccid in the throat, and all the subsequent manœuvres of the operation can be conducted with ease.

The importance of the preceding step will be made sufficiently evident by the successful result in those cases in which it has been performed. We have already referred to the last reported cases of Professor Roux. From the same article it appears, that his success in cases where the fissure was complicated with a division of the bony palate, was one out of three, but in these no attempt seems to have been made to close the aperture in the bones. In regard to the cases performed by the writer, according to the present propositions, of the fourteen already published, thirteen proved successful, and in the ten cases now to be given, all had a favourable termination. This is the more striking, when it is considered that twenty-three out of twenty-four of them were more or less complicated with fissure in the bones, a fact which also shows the rarity of a perfectly simple fissure of the soft parts.

Since the publication of this method for relieving these deformities, it has been repeated elsewhere, both in this country and abroad. Among others who have given much attention to this subject, is Mr. Fergusson, the distinguished Professor of Surgery at King's College, London. This gentleman has published a paper in the *Medico-Chirurgical Transactions*, for 1845, in which he calls the attention of the profession to the important influence exerted by the muscles of the palate, in the operation for fissure, and recommends the division of the palato-pharyngeus, which forms the principal bulk of the posterior pillar of the palate, of the levator palati, and, in some cases, of the palato-glossus, in part, by a sub-mucous incision. The effect of this is to paralyze the powerful action of these muscles on the palate, and thus remove one of the most important obstacles to the success of the operation.

The same result is produced by the method above described, and although in my first paper no stress was laid on the division of muscular fibres, yet to any one who employs it, the effect of the incision of the posterior pillar in destroying muscular action, will be at once apparent. I have long been in the habit of calling the attention of those present, and assisting me in these operations, to the facility and rapidity with which all the subsequent steps may be made, such as passing the sutures, tying the knots, &c., formerly the most embarrassing part of the whole proceeding.

The sutures may be introduced with a delicate curved needle, carried on a forceps with a movable slide, or, in cases where they are to be made through the mucous membrane of the hard palate, which, as often happens, is too much contracted to allow of the manœuvres of the needle and forceps in carrying the stitches from before backwards, I have used the crochet-aiguille of Schwerdt. This instrument consists of a double hook, pierced near its point with an eye, having a mechanism like the spring-forceps of Assalini. The needle being threaded, and passed through the edges of the wound, from behind forwards, the thread is caught by a tenaculum. One handle of the spring-forceps is now pressed upon, which opens the instrument laterally, and allows the thread to escape, and the needle to be withdrawn. The ligatures are secured with the greatest ease by means of the surgeon's knot, and from the almost entire impassibility of the parts, the knots will seldom be found to slip.

The after-treatment of the patient is at present greatly ameliorated; and experience has taught me that liquid food may be taken in the quantity required, whereby the inflammatory process which formerly followed, and was so much aggravated by the deprivation of fluids, is only sufficient for the healthy adhesive process necessary to close the wound.

In order to illustrate some important practical points in the operation and treatment, I have determined, at the risk of tediousness, to give in detail the history of ten cases of fissure of the soft palate, which have been under my care within the last two years.

Case I.—G. W., of Freeport, Maine, applied to me with a congenital fissure of both the hard and soft palate, complicated at birth with hare-lip. The latter had been operated on at the age of six months, and the alveolar processes had since come together, but had not coalesced. There was a long fissure extending from just behind the alveolar arch backwards, through the soft and hard palate. The bones composing the roof of the mouth were, as may often be observed in these cases, shelving posteriorly, making the fissure of great width, and increasing the difficulty of dissecting off, and approximating the soft parts that cover them. The speech was rendered, by this malformation, scarcely intelligible.

The operation was performed on April 4th, 1846, with the assistance of Drs. H. J. Bigelow and Briggs, as follows:

The patient being placed in a good light, in front of the window, with a long spear-shaped knife, curved on its flat side, and cutting for half an inch on both edges, the mucous membrane was dissected from both sides of the palate, as far forwards as the anterior angle of the fissure, and backwards to where the soft palate joins the ossa palati. A pair of sharp-pointed scissors, curved like the knife on the flat side, were now carried behind the soft palate, and the attachments of the latter to the ossa palati cut away, leaving the mucous membrane in front intact, thus affording a continuous flap. The uvula was next seized on either side, and the parts being made tense, the posterior pillar of the palate was freely divided, and the dissection continued backwards, until the flap expanded, and not the least resistance was offered to any manipulations. Six sutures were rapidly introduced without difficulty.

Before tying the ligatures, it was found necessary again to loosen with the curved scissors the attachment of the soft palate to the bones. In doing this, an artery was divided, probably the palatine, which gave rise to a troublesome hemorrhage, so that the ligatures were not tied until the bleeding had ceased in the afternoon. In half an hour it again returned, and continued to the amount of half a pint. This is the only time trouble has ever arisen from this cause, within my knowledge.

After the first day, the patient was allowed gruel, or drink, every four hours. Owing to the irritation from the bleeding, and the coagula forced between the parts, the stitches at the upper edge of the wound gave way. The soft palate united well. As I intended to repeat the operation on the hard palate, I advised him for the present not to have an obturator applied.

Case II.—Miss J., of Andover, applied to me in April, 1846, with a congenital fissure of the soft and hard palate of the worst form. The bones were so widely separated, and to such an extent, that I told her at once it would be impossible to close the whole aperture by any surgical operation. As she was extremely desirous that something should be done to improve her speech, I agreed to make the attempt.

The membrane was dissected from the hard palate, as far forward as was thought useful, and the operation already detailed in the account of the preceding case repeated upon the soft palate. The bleeding was trifling. Five stitches were introduced, and easily tied.

This patient was allowed half a pint of liquid nourishment three times a day from the time of the operation. The stitches were removed on the third or fourth day, and the union found to be perfect, so as to obliterate about two-thirds of the whole fissure. I then referred her to Dr. Tucker, who constructed an obturator which closed up the remaining aperture in the bones, and enabled her at once to articulate with much greater distinctness than ever before.

Case III.—1846, Sept. 26th, W. E., aged 18, was operated on for a congenital fissure of the soft and hard palate, the latter being separated half an inch. The membrane was dissected from the hard palate, and the posterior pillar divided, when the two sides hung almost perfectly flaccid. A strip was next removed by the curved scissors, from the whole margin of the fissure. The edges were approximated by four sutures. There was but little bleeding, and, to prevent oozing, iced water was ordered for the rest of the day.

29th. "He has not had a bad symptom; no cough, no soreness of the throat; he has been able to sit up, and to-day is down stairs. I removed the stitches, and the union appeared to be perfect."

A small aperture, however, in a few days presented itself at the upper angle of the fissure. But this did not prevent him from returning home on Oct. 3d. The aperture was touched occasionally with the nitrate of silver, and by Nov. 17th, was obliterated. His voice had greatly improved.

Case IV.—Miss A. G., aged 22, with a congenital fissure of the soft and hard palate, extending through the ossa palati, was operated on in the usual manner, Oct. 8th, 1846, Drs. Parkman and Briggs assisting. The bleeding was rather more than usual, and required the constant use of the sponge, in order to allow of the prosecution of the different steps of the operation. She was directed to keep small bits of ice in her mouth for the remainder of the day.

"*9th.* Has had a comfortable night.

"*11th.* The wound has an appearance as if about to suppurate:" and, in fact, on the following day, the stitches seemed ready to give way. An additional suture was, therefore, immediately taken at the lower part of the fissure.

A small portion of the wound united at the upper part at once, and still more from the additional stitch. By the occasional use of caustic, and scarifications, the whole fissure, with the exception of an aperture at the inferior part of the soft palate, was closed. This latter, made by the ulceration of one of the ligatures, was quite manageable.

This patient was healthy, and kept uncommonly quiet. The disposition to suppurate in the edges of the flaps, seems to have arisen from the too free use of the sponge, which I discovered afterwards was of bad quality, and quite filled with sand. This serves to show how trifling a matter may defeat the best planned operation, as in this case I had expected a most perfect union by the first intention.

I have lately seen this lady, and find the new palate to be very flexible; her speech is also much improved, and she is daily increasing in her command of it.

Case V.—Hannah H——, aged 20, had a congenital fissure of the soft and hard palate, the bones being separated about two-thirds of an inch at their lower part, and the extent of the fissure being nearly the same. Behind this aperture, in the mucous membrane of the back part of the fauces, was a cleft about an inch in length. Speech was very imperfect.

The operation was performed in the usual manner, on Oct. 13th, 1846, the mucous membrane being dissected from the bones with much difficulty, on account of the extreme narrowness of the palatine arch. The posterior pillar of the palate was divided on each side. Five sutures were now introduced, tied without difficulty, and the whole fissure obliterated. The soft parts were unusually free from vascularity, and the operation entirely over in less than thirty minutes. She was allowed half a pint of liquid nourishment three times a day.

Scarcely any inflammation succeeded, and she experienced very little pain or inconvenience, being up and occupied during the cure. On the 15th, two of the sutures were removed, and the remainder on the following day.

The whole fissure appeared at first to have closed, but shortly after a small aperture appeared at the upper angle, which, from the great want of vascularity, required the application of irritating substances at intervals, for some months before it was closed.

Case VI.—Mrs. M——, of Georgetown, aged 22, having a fissure of the soft and hard palate, with a division of the bones, was operated upon in the presence of Drs. Briggs, B. Brown, and Slade, on Dec. 16th, 1846.

In this case, there was a little more bleeding than usual, when the left pillar of the palate was cut. Six stitches were introduced, and the threads easily tied. She was allowed to take oatmeal gruel.

On the evening of the second day, after eating some broth, she was seized with a severe fit of vomiting, and I feared that the adhesions would be entirely destroyed. On the following day, however, all the stitches were removed, and to my great satisfaction an almost complete union had taken place. At the end of five days, she returned home, and in the ensuing February I received a letter from her, in which she said that she was quite well, the aperture at the summit of the fissure had closed, and her voice had greatly improved.

Case VII.—F. G——, of Newton, N. H., 30 years of age, was operated upon for a congenital fissure of the soft and hard palate, on March 31st, 1847. The fissure in the hard palate was here about an inch in extent, but instead of terminating in an angle, it was of a circular form, the bones being widely separated. The soft parts were very thick and vascular, and some embarrassment was experienced from the flow of blood, as is apt to be the case in very powerful subjects. Five sutures were introduced, and tied without any great strain. There was some oozing of blood at the upper angle of the fissure, after the threads were tied, but by the free use of ice-water, it had ceased in the afternoon.

April 1st.—I found him down stairs partaking of a large bowl of gruel. He had passed a quiet night, and was in good spirits, having had no pain, or soreness of the throat, and no disposition to cough. On the next day, 2d, two of the middle stitches were removed, the others on the third, and the fissure seemed to be united in its whole extent.

On the fourth, I found this patient, who was somewhat heedless, had been eating hard crackers and cake, and had, in consequence, burst open the upper part of the adhesions. On the fifth, he returned home, with directions to touch the angle of the wound with lunar caustic, and to report himself to me in June.

At this latter date, I again loosened the edges of the remaining opening from the bones, and introduced a stitch, so as to approximate and obliterate the wound; about half of the opening was thus closed.

This process will require to be followed up, in order completely to close the aperture.

Case VIII.—May 31st, 1847. At the Mass. General Hospital, a fissure similar to the last was operated on. The bones were widely separated. The operation presented nothing remarkable. Four stitches were introduced, and removed at the end of four days. The soft palate entirely united. A small fissure in the bones remained.

Case IX.—July 13th, 1847, Miss L——, 17 years of age, the daughter of a distinguished physician in a neighbouring town, had a fissure in the bones, extending through nearly one-half the extent of the bony palate, which was exceedingly narrow, and shelved backwards, so that I found it almost impossible to manœuvre the instrument, while dissecting off the membrane which covered them; with patience, however, this was finally accomplished.

She was able to be up, and walking about during the treatment, took liquid nourishment from the first, and was but little troubled with that harassing cough, which is always painful, and dangerous to the success of the operation.

On the 16th, the stitches were removed, and the whole extent of the fissure appeared to be closed. On her return home, however, as is almost invariably the case, an aperture was discovered at the upper angle. This was obliterated by the use, first, of lunar caustic, and afterwards of the strong tincture of cantharides, as recommended by Dieffenbach.

Case X.—William L——, 20 years of age, was born with a double hare-lip, and a fissure both of the soft and hard palate. Some operations had been performed on the lip during infancy, but it was not until 14 years old, the hare-lip was definitively operated on, and closed. When he first consulted me, I supposed I had at length discovered a case of median hare-lip, but on a further examination, this seeming anomaly was explained. The following was the appearance of the interior of the mouth: The two canine teeth of the upper jaw were in contact; about half an inch above, in the fissure, where the maxillary bones had come together, a portion of another tooth was seen, probably an incisor. A great part of the inter-maxillary bone had been removed, when the lip was first operated on, leaving that containing the socket of one of the incisors. As is usual, after the operation on the soft parts, the alveolar processes had been dragged into contact. Directly behind the alveoli, the fissure commenced. The palatine processes of the superior maxillary bones, and the ossa palati, seemed to be almost in a rudimentary state; and the whole arch, from the removal of the inter-maxillary bone, and the subsequent approximation of the parts, was rendered extremely narrow.

This patient was very sensitive and nervous, caused by the remembrance of the last operation on his lip, and which, from his want of firmness, lasted, as he states, six hours. In operations on the throat of this character, which require the voluntary power of the patient in keeping open the mouth, and expelling the blood, ether cannot be used, so that I almost despaired of success. I therefore stated to him beforehand, that unless he could come to the determination to submit fully, I must decline attempting anything, as no surgical operation required so completely the consent of the patient, as the present. To this he finally consented; the operation was done as usual, and he amply redeemed his promise.

From the almost entire deficiency of the hard palate, the opening at this point could not be easily remedied, but the soft palate united after some previous inflammation. The mucous membrane covering the relics of the hard palate and alveolar processes, was much thickened by the first operation, so that in a week or two I again dissected it up, and was able to bring it quite across the fissure by sutures. Although these, from tension, gave way, yet they partially effected the object. By pursuing this course, I had no doubt the fissure could be ultimately closed.

The prolabium, or red portion of the lip, in the operation formerly done on him, had been allowed to remain, and the edges brought together in the median line, producing much deformity. The base of the opening of the nostrils was expanded, or flaring, and an aperture, an inch and a half long, existed between the jaw and lip, allowing a communication at that part. All these were remedied. The patient having complained that the tip of the nose was too broad, at his earnest request I dissected the skin forming the septum from it in a pyramidal shape, elevated the tip, brought the cut surfaces in contact, re-applied the pedicle underneath, and thus accomplished the object.

The small aperture remaining in the hard palate was closed in this, as in most of the cases where I have found it necessary, by a bit of India-rubber, as recommended by Dieffenbach. Two portions of Goodyear's patent India-rubber may be cut a little larger than the aperture to be closed; they are stitched together in the centre; one portion is slipped into the nasal aperture, and keeps the second in the mouth in place. It can be removed, and replaced at the pleasure of the wearer.

Everything being accomplished, my patient departed to the West to seek his fortune, with a new palate, a new lip, and as good as a new nasal ornament.

In the ten cases now given, and in the fourteen before related, there never have been any severe inflammatory symptoms, or constitutional disturbance to combat; and, in fact, since the patients have been allowed to take nourishment to preserve the strength, they have been able to sit up, and in most cases go about the house as usual.

The question has been often asked, how soon the voice is improved, and the other good effects apparent. In the greater proportion of instances, I think it may be safely said, an immediate amelioration in the difficulty of swallowing takes place: there is generally more facility of speech, which, so far as it has been in my power to watch patients at a distance, is constantly improving. A young man, whose case was related in the previous paper on this subject, was present at a meeting of the Boston Society for Medical Improvement, about two years after the operation, and it was difficult to discover the least imperfection in his speech, although it had previously excluded him from society.

It will be perceived that, in these ten cases, there was more or less division of the bones, requiring in all some dissection of the hard palate. It will also be perceived that, in every one, even those which finally proved successful, a small aperture constantly remained at the superior angle. This occurrence may be explained, either by the difficulty of bringing the parts at the angle into apposition, by not removing a sufficiency of the margin of the flaps, or by the necessary folding or puckering of the wound that takes place at that part. In all these cases, where the aperture was small, it was obliterated by the persevering use of scarifications, lunar caustic, or gentle touches with sulphuric acid. When the fissure which remains is not amenable to the action of caustics, by reason of its extent and the unyielding nature of the parts, there is no question but that, by frequent scarifications and dissections, it may soon be so thickened as to admit of sufficient extension finally to close the opening. This I found to take place in the tenth case, where the mucous membrane, covering the small remains of the bony palate, from being as thin as paper, finally assumed a thick, fleshy consistence, lapped over the sides of the bones, and seemed to be gradually effecting a closure of the aperture.

Early Operation for Hare-lip.—In the paper already referred to, as published in the *New England Quarterly Journal of Medicine and Surgery*, for April, 1843, was advocated, in connection with the operation for fissure, the early performance of that for hare-lip, both as being more successful at this period, and also as a means of assisting in the difficulty so often coexisting with it. Since then, I have been in the habit of operating on children at as young an age as possible, having repeatedly performed it in twenty-four hours after birth, in one instance on the same day the child was born, and in all these cases with better success than in older children.

The favourable circumstances are, 1st, the slight resistance of the patient; 2d, the great rapidity of the healing process, thus rendering the child able to nurse almost as early as if nothing abnormal were present; and, lastly, the comfort to the friends, who are saved from the exposure of the deformity, always exceedingly painful to the feelings of parents.

In double hare-lip, complicated with a fissure in the bones, and a projecting tubercle, I have preferred to operate on one side of the lip, and allow it to heal before operating on the other. When I have attempted both at the same time, and, in fact, in almost every instance I have witnessed, a failure has been the result, the tissues being too much stretched, and the inflammation becoming suppurative. By the preceding method one side has generally united, and, if left for a month before a second operation, the protuberant inter-maxillary bone will be found more or less dragged into place.

After considerable experience, I am convinced that sutures are much preferable to needles, no matter how wide the separation, and consequently great the tension required, to bring the parts into contact. They have these advantages: 1st, they are more easily introduced; 2d, they produce less irritation; and, 3d, they can generally be removed at the expiration of forty-eight, or at the most, of seventy-two hours, without danger of disturbing the tender adhesions. On the other hand, if needles are used, they must be left until they are sufficiently loosened by ulceration, otherwise there is great danger of tearing open the wound. The part of the lip also embraced by the figure of 8 over the needles, is often left red and excoriated.

When the stitches are used, the intervening parts are exposed, the process may be watched, and by the application of a small compress kept constantly wet with water, the inflammation liable to occur in very young subjects is so moderated that, on the removal of the sutures, I have frequently found the line of adhesion quite perfect, free from redness, and after a short time it could scarcely be distinguished. In fact, the tissue seems to melt into the other, without any perceptible cicatrix remaining.

It is important that the suture needles be straight, as it will be found difficult to pass crooked needles, of the small size requisite, through the edges of the wound, without their turning in the hand. The former are also sometimes better introduced by seizing them firmly with a forceps or pincers.

One of these early cases, a patient of Dr. Hale, on whom I operated when twenty-four hours old, I have lately seen. The child is now twenty-two months of age, and, to a casual observer, scarcely any traces of the operation are visible; but, on a more minute examination of the lip, a small linear scar is seen. There is no dragging up of the lip, or stretching of the prolabium. The ala of the nose is well defined, and without the flaring so generally seen, where the hare-lip is complicated, as in the present instance, with an extensive fissure of the palate. In addition to these deformities, the alveoli were separated, so that the fore-finger could be readily introduced between them. They are now in perfect contact, and by means of pressure on the maxillary bone, conducted under my direction, the fissure in the bony palate is obliterated for about half an inch. This fact demonstrates the importance of an early closure of the lip. The father of this child, who had also a congenital division of the palate and hare-lip, did not submit to an operation on the latter, until he was of adult age; consequently, the gap in the jaw remains as wide open as ever.

Art. II.—*The Result of Cases of Pneumonia treated chiefly by Tartar Emetic (Antimonii et Potassæ Tartras).* By J. F. Peebles, M.D., Petersburg, Va.

In all the systematic works, we find the tartar emetic administered with a view to the attainment of its sedative effects on the circulation, recommended in the treatment of inflammatory diseases, especially those of the pulmonary organs. Rasori first propounded its claim as a contra-stimulant, but it seems that to Laennec is due its extensive employment in the treatment of pneumonia. These authors, and most subsequent writers, speak of its administration in almost incredible quantities, given within an exceedingly short space of time. Rasori, for instance, has given many drachms within twenty-four hours, and several ounces during the course of a disease, and Laennec has confirmed, to a certain extent, his statements, since he gave with impunity from one to two scruples, and even a drachm and a half within twenty-four hours.

No allusion is made by these, or most other writers, to any injurious effects arising from its use; nor is any caution expressed in relation to its employment, under the circumstances calling for its administration. Since there exists, therefore, such weighty testimony in behalf of its innocuous character, the writer feels some hesitation in attributing the unfortunate termination of the cases he is about to relate, and the peculiar symptoms which supervened upon their progress, to the effects of the drug; yet the uniformity in the character of these latter, under a state of things pretty nearly similar, certainly is sufficient to excite attention. These cases, we may add, were carefully noted at the time of their occurrence, not with the view, however, of observing the effects of the tartarized antimony, but simply for the purpose of obtaining general facts relating to the history and treatment of this important class of affections.

Case I.—Louis, a robust young negro man, was seized, after complaining several days of slight indisposition, with a severe rigor during the night. I saw him Nov. 3d, 1844, on the second day following the chill. I found him lying on his back, labouring under dyspnœa and great prostration; his countenance was anxious and shrunken; his skin was rather cold and harsh; his pulse was very feeble, and 110 beats per minute; he complained of dull pain in the chest, coughed frequently, and expectorated freely tenacious viscid mucus of a dirty tinge, occasionally variegated with a pinkish hue.

The right lung was dull, throughout, on percussion, whilst under the ear the crepitation of pneumonia was detected in the upper portion of the left, and found to exist, generally, in the right lung, in many places completely obscuring the vesicular murmur. Diagnosing it as a case of double pneumonia, and taking into consideration the general condition of the man, and the delay which had occurred in calling aid to the case, although the disease had not yet passed beyond its first stage, my prognosis was unfavourable. Sinapisms were applied to the extremities, and he was freely cupped on the chest. Deeming venesection inadmissible, and believing that urgent necessity existed for the speedy relief of the lungs, I determined on the use of the tartarized antimony as recommended by Laennec. Beginning immediately, the man was ordered to have one grain of the drug every second hour, dissolved in water, to which was added infusion semen lini sufficient to make the dose four ounces. He tolerated the medicine from the first; it produced neither vomiting nor purging; and at my evening visit, I found his condition somewhat ameliorated; his pulse was fuller and less frequent; his skin was warmer and slightly moist; he still, however, maintained his position on the back, and was much troubled by cough. Continued the medicine, and ordered 10 grains pulv. ipecac. et opii, at bed-time.

Nov. 4th. Condition same as the previous evening. He passed a restless night from his cough. No nausea; had not vomited since I last saw him, but had had two copious, but consistent evacuations from the bowels. The stools were unaccompanied by pain, and they consisted of dark vitiated secretions. No thirst; his tongue moist and covered with a creamy coat. There was increased dullness on percussion, and the stethoscopic signs indicated a further consolidation of the left lung. Sputa more viscid and tenacious, having a fibrous appearance, with great elasticity, and of a dark hue; his pulse quick and compressible. Ordered cups between shoulders, and increased antimony to two grains every second hour.

5*th.* No change. Still a perfect tolerance of medicine without any evacuation, save a slight perspiration. Continued treatment, stopping medicine, however, whenever he fell asleep.

6*th.* But little change; treatment continued.

7*th.* Evidently better; respiration more free, strength increased, cough less troublesome, expectoration easy, and the sputa less tenacious; has now become thick, creamy, and is occasionally unmixed with blood. Although the medicine has been steadily continued, he wants to eat. The state of the lungs correspondingly improved; chest more resonant, and there is less obscuration of the vesicular murmur by the crepitation. Diminish dose of antimony to one grain every third hour. Farinaceous diet.

8*th.* Patient had four evacuations from the bowels during the night, and did not rest well. Still, however, improved. Desires food; cough much less troublesome; can lay on either side, and easily gets in and out of bed without help. Continued same diet, and directed 5 drops tr. opii in each dose of medicine.

9*th.* Still improving. The laudanum had restrained his bowels, and he slept well during night. On the 10th, all medicine was discontinued. The symptoms generally had subsided, and he could walk about the room. After visiting him several days as a security against errors in diet and exposure, I left Louis, satisfied that his recovery was secure.

24*th.* Exactly ten days since I had paid him my last visit, I met Louis in the street, returning from his work. Perceiving, from his appearance, that he had not improved as I had expected, and struck by the pallid, ashy hue of the skin, I stopped him. My attention was at once arrested by a collection of pinkish-coloured mucus around each nostril. He told me that his nose had bled just as it did then for several days, but he persisted that he had quite recovered. I found his pulse very small and frequent, his skin shrunken and cool, his tongue very pale and clean; and upon examining more closely, I detected several ecchymosed spots on the mucous membrane of the mouth, one as large as a five cent piece, existing over the buccal membrane on the right side. Becoming, at once, anxious about the case, I ordered the man to be confined to the house, and directed for him a hot foot-bath, quinia, a nourishing but unirritating diet, and the free use of lemonade.

27*th.* Summoned early to see Louis. The hemorrhage, which, though slight, had never ceased entirely from his nose, had increased greatly during the night, and I found him suffering from profuse epistaxis. He still made no complaint of pain or sickness. The hemorrhage was purely passive; there was no heat or vascular excitement about the head; the blood seemed to flow steadily in sluggish streams from both nostrils. Its arrest was exceedingly difficult; indeed, I found it impossible to prevent a slight oozing, which continued. There was no fever, and his appetite was excellent. Ordered him to drink freely of cool acidulated drinks, to maintain the sitting posture, and as night came on, substituted for the former treatment, acetas plumb. et opium in full doses, at short intervals. His condition hourly was becoming more critical.

28th. Patient allowed his nose to bleed all night, or nearly so, without calling for aid. He had now become too weak to support himself erect, and he was propped up to elevate his head. His nostrils were carefully injected with solutions of alum, sulphate of copper and with creasote, but without success; I then securely plugged them up from behind. He still maintained his cheerfulness, and ate heartily.

29th. Blood oozing from his nose all night. As he lay with his head turned aside, from the base of either nostril a small stream would form and trickle slowly over the cheek—sufficient to wet a small handkerchief in a couple of hours. The blood had become thin and nearly colourless. In the course of the day, his urine became bloody, which was speedily followed by stools of the same character. He rapidly became so perfectly anemic, that the very slight pressure occasioned by a bandage which passed under his nose to be tied over the head, for the purpose of fixing the external plugs within the nostrils, was sufficient to create complete œdema in the face and forehead above it, the raised and pellucid appearance of the skin giving the countenance a singular aspect. He soon became unmanageable, and progressively sank, the bloody discharges continuing; and during a slight convulsion, he expired on the next day.

No post-mortem could be made.

The scorbutic symptoms in this case were attributed, at the time of their occurrence, to the treatment the man had received. Soon after I ceased my visits, he was made to sleep in a crowded apartment, and to mess with the other negroes, on a diet consisting of salt pork, fish and beans.

Case II.—*December 10th*, 1845. Visited Caroline, a well-grown negro girl, aged 17. After suffering with a severe catarrh for several days, upon exposure on a raw damp afternoon, she was siezed with a chill which lasted her nearly all night. I found her labouring under a threatening attack of acute bronchitis, extensively involving the lining membrane of both lungs. The symptoms were urgent; there was great distress in respiration; a disposition to sit up in bed; her countenance was anxious, her lips livid, and she was slightly delirious. She had long fits of coughing at short intervals, and she brought up at the end of each, considerable quantities of frothy mucus, freely streaked with blood. She had taken a full dose of calomel the previous night, which had been followed by castor oil that morning, and the bowels had been freely evacuated.

V. S. ad deliq. animi, to be followed as soon as reaction was established, by cups to the chest. ℞.—Antimonii et potassæ tart. gr. vi; p. g. acaciæ ʒiv; aquæ font. ℥vss; syrup. aurant. ℥ss; one tablespoonful of this mixture every hour. The second dose of the medicine vomited her freely; afterwards tolerance became fully established. The symptoms continued so urgent that V. S. was again employed in the evening, and the medicine ordered to be continued all night.

11th. Rested badly, and is but little, if any, better. Cough is extremely troublesome, and the respiration so much oppressed that she is scarcely able to converse. Pulse less frequent, tongue somewhat moister. Same treatment continued, in addition to which the chest was blistered extensively. As evening approached, signs of amendment appeared; the respiration became better, cough less troublesome, and not so harsh and ringing, and there was a free expectoration of sputa, which was much less frothy, though plentifully streaked with blood. Some perspiration on the skin. No other evacuation from the tartarized antimony, which was continued.

12th. Rested well. Symptoms all improved. Bowels twice moved during the night, without pain, however. Cough still troublesome, and expectoration free. Sputa less tenacious, more opaque and thick, occasionally of a purulent tinge. Medicine continued. From this time the girl's improvement was progressive, and I left her on the eighth day of her attack free from cough, and although she was considerably emaciated, there was every prospect of uninterrupted recovery. By accurate computation, she had taken during her attack 36 grs. antim. et potass. tart., and nothing else besides the single dose of calomel in its onset, and some light laxative medicine.

26th.—Summoned at daylight to see Caroline, who was represented to be bleeding dangerously from the nose. I learned that some four or five days after I had left her, she had passed, during a cold, rainy afternoon, several hours in an open porch, which imprudence had been followed by a relapse of the bronchial inflammation; and, that the family had given her two vials more of the medicine as ordered before, and according to the same prescription, which had controlled the symptoms. It seems soon after her relapse, epistaxis came on, occurring at first during severe fits of coughing; and of which she had had repeated attacks every day, without, however, being sufficient to excite apprehension. The bleeding had continued all night, and I found her pulseless, faint, restless, and altogether unmanageable. The blood streamed from both nostrils, or gushed from her mouth, when any pressure was made on the nose. Though an intelligent girl, her extreme restlessness would not allow her to adopt the necessary means to insure relief. Her nostrils were unsuccessfully plugged, and every other measure to arrest the hemorrhage failed, and she died late that day.

Case III.—Eaton, a young negro man, remarkable for his previous good health, was seen Nov. 7th, 1846. He was labouring under pleuritis of the right side, and complete pneumonic engorgement of the corresponding lung. He had been seized the night before I saw him, and was then suffering with pain in the side, high fever, cough, with viscid expectoration tinged with blood.

V. S. in the sitting posture to approaching syncope, followed immediately by a full dose of calomel and opium. By evening, I found his bowels had been twice moved by the calomel. He complains less of his side, but his cough was very troublesome, and the arterial reaction was still high. Ordered him to be freely cupped on the chest and side, and to take a tablespoonful of the following mixture every second hour. ℞.—Pulv. g. acaciæ ℥ss; aquæ font. ℥viiss; antim. et potass. tartras. gr. vi; syrup. aurant. ℥ss.—M.

Nov. 8th.—Had borne the medicine well; bowels had been twice opened, the evacuations being dark and consistent; his cough was harassing, and the pain in the side was worse than on the night before. Repeated cupping, and continued the mixture. In the evening, it was found necessary to employ venesection again, which was followed by the following pill, in addition to the mixture, which was continued as before. ℞.—Protochlorid. hydr. gr. v; pulv. opii gr. j; syr. simplex q. s.—M. ft. pilul.

9th.—Had slept, and expressed himself better; pain in the side less. Some increase of dyspnœa, besides which, no change in symptoms. Upon examination, unequivocal traces of effusion were found to exist in the right pleural sac; and there were also signs which created a suspicion that the lung had passed into a state of hepatization. There was less arterial action; his tongue was coated, and there was considerable thirst. Discontinued mixture, and blistered chest, ordering, instead of the former, the following pill to be taken every fourth hour: ℞.—Protochlorid. hydr. gr. iij; pulv. opii gr. ss; antim. et potass. tartras. gr. iss.—M. ft. pilul. In the evening his fever rose, and not deeming it expedient to renew the venesection to subdue it, ordered resumption of the mixture, a tablespoonful every fourth hour, dividing the time equally between each dose of pills. From this time little change was made in the treatment of the case. He bore the medicines well, generally having his bowels opened by purgative enema. On the tenth day of his illness, the gums became tender, and the pills were discontinued. This was followed by a gradual amelioration of the symptoms. The mixture, however, was continued, although at longer intervals, until the thirteenth day of attack.

20th.—Examined chest; patient sitting up, with good appetite, and a clean tongue. Pleuritic effusion gone; respiration returned in nearly every part of the lung. Coughs only occasionally, and expectorates only round masses, thick, and pus-coloured. Is very thin and weak; ordered quinia in small doses, and chicken soup.

22d.—Sitting up, looks very feeble; his skin dry, husky, and apparently tightly drawn over the face; does not complain; appetite good. I expressed surprise that he was not more improved, when an attendant informed me that his bowels were too free. He had had four copious evacuations from them within the preceding twenty-four hours. These discharges, which had been reserved for inspection, had a putrid, and exceedingly offensive odour. They had the consistence of tar, were full and copious, and were of a reddish-brown colour. Ordered vegetable astringents, quinia in small doses, frequently repeated, and a nourishing, but unirritating diet.

24th. Unable to sit up. The discharges had continued from the bowels, having one about every fifth or sixth hour. They were unaccompanied, however, by the slightest pain. His bowels appeared constantly as if they were completely empty, the abdomen being so flat that the spine was easily felt, and there was not the slightest tenderness on pressure. Appetite good—no thirst—the tongue, which had been previously clean, began to show a long, dirty fur down its centre. The evacuations still consistent as before, and more offensive. Their colour had now become more florid, and upon a closer inspection, this was found to be due to myriads of minute dots of blood intimately blended with fecal matter.

25th. Sinking. Evacautions more highly coloured with blood, putrid odour, and more frequent. Whilst standing by the bedside, following an effort to clear the throat, he spat up about a teaspoonful of florid, liquid blood, which produced an immediate change in his voice, inducing the impression that the hemorrhage came from the larynx. I inspected his mouth and found nothing amiss in it or the throat—all traces of the ptyalism, which had been slight, had disappeared. He continued to spit up blood in this way, at short intervals, until his death, which occurred next day. Pressing engagements prevented my making a post-mortem examination.

Case IV.—*Dec.* 29*th*, 1846. Visited Mr. J. R., mechanic, aged about

27—robust, but of rather intemperate habits. It was the day following his attack, and I found him labouring under pleuro-pneumonia. The progress and treatment of this case were so similar to the one just preceding it, that I deem it unnecessary to give its details. The patient was bled twice early in the attack; he had similar doses of the antimonial solution, alternated in the same way by the mercurial pill, which latter was administered with a view to its specific action on the system. Tenderness of the gums came on the eighth day of the attack, when the pill was discontinued, but the antimony was given until the eleventh day.

At this time the symptoms had all declined in the most satisfactory manner; save a trace of effusion, still existing in the pleural sac, the lung appeared completely relieved. The salivation had not progressed after the withdrawal of the pill, and his appetite was good, tongue clean. There was no error in diet which could be detected; yet on the evening of the twelfth day of his attack, I detected the peculiar putrid odour which had existed in those of the former case, in an evacuation from the bowels which the patient had during my visit.

Upon inspection I found a complete coincidence also in the colour and consistence of the excretion. This relaxation of the bowels had existed during the day, and the patient was evidently not so well. No blood could be detected in the excretion, although its colour was florid. This, however, appeared next day, when he had several passages, which consisted entirely of grumous blood, yet the putrid offensive odour still existed.

On this day, the thirteenth of his illness, he was visited by Dr. B. H. May in consultation with me. The doctor agreed with me, that the pneumonic symptoms had disappeared, and that the lung had resumed its function.

At his suggestion the following prescription was adopted:—℞.—Hydr. c. creta, pulv. ipec. et opii, āā gr. iij.; acet. plumbi gr. ij; tannic. puræ gr. j; a powder to be taken every third hour. Farinaceous diet. This prescription was sedulously continued for four days, when the bloody stools gradually subsided, and were followed by dark, bilious evacuations. This man recovered, although several months elapsed before his health was fully restored.

Case V.—*Jan.* 21*st*, 1847. Called to see Dred, a young, but delicate negro man, who had but recently recovered from protracted intermittent fever. He had been seized on the previous evening with chilliness, and I found him labouring under pneumonic engorgement of the right lung, accompanied by cough and bloody expectoration; dull pain in the chest. His pulse was frequent and very compressible, and there was great muscular prostration.

He had got, the previous night, a dose of calomel and Dover's powder, which had been followed by castor oil that morning, and his bowels had been freely evacuated. Conceiving that his condition precluded the employment of venesection, I had him freely cupped over the engorged lung, and ordered him ¼ gr. of tartar emetic in a wineglassful of sweetened mucilage every second hour. The symptoms seeming to yield under it, no change was made in this prescription for three days, when I was summoned to see Dred in anticipation of my regular visit. I found a total and remarkable (considering the short time which had elapsed since my visit the day before) change in all his symptoms.

The pneumonic symptoms had all vanished; the lung was resonant, and the cough and expectoration had ceased; and he was now labouring under acute gastritis. Purging had supervened in the course of the previous night, and he continued to have thin watery evacuations. He complained of burning and pain at the epigastrium, had a constant thirst, and his tongue, which had been previously coated, was now dry and perfectly clean, and so devoid of its proper coating as to present the appearance of raw meat. The purging had produced great prostration. Under appropriate treatment for the gastro-enterite, viz., leeching the epigastrium, mucilaginous drinks, with hydr. c. cret., and Dover's powder to stay the purging, this man progressively recovered, without ever once manifesting any return of the pneumonic symptoms.

Remarks.—It will be perceived that I have only adopted the exclusive use of the tartarized antimony in the treatment of pneumonic affections, under particular circumstances, namely, 1st, in cases where general blood-letting was altogether inadmissible; 2dly, where its further employment, from the advanced progress of the disease, was deemed of doubtful propriety, and yet where some measure was required to keep down arterial action; and, 3dly, in those cases, whether blood-letting was admissible or not, in which the symptoms were too urgent to await the slower and more sure process of mercurialization, which I prefer and usually adopt. I find, in looking over my sketches, that in the above cases, more of the antimony was given than was used in the treatment of any other case of the disease which I have noted. It is true I have generally employed the remedy in conjunction with other means, in nearly every case of severe pneumonia; but in all others, save the ones reported, I have abandoned it early, either because it disagreed with the patient, or from a conviction that its continuance would not be useful after the advancement of the morbid condition of the lung into hepatization, and that, if it has been employed later, it was in smaller doses and at longer intervals. It will be perceived, moreover, that its operation in the cases quite satisfactorily confirm the existence of the power which has been ascribed to the drug, to control pneumonic inflammation.

The first case, particularly, illustrates, in a striking manner, its prompt and efficient action in resolving a grave case of the disease. We believe, indeed, that no one witnessing its operation when administered after the plan of Laennec, provided the patient bore the medicine well, could remain unconvinced of its efficacy and great power in cutting short an attack of the disease.

We consider, therefore, that the only questions left open for discussion, are the safety and general applicability of the remedy. Whilst it may be conceded that it will speedily resolve an inflamed lung, an equal interest should certainly be felt in the consequences resulting to the system from its operation to produce this effect. In other words, though it may speedily cure the original disease, may not its effects on the constitution be such as to seriously protract and retard convalescence, if not to lay the foundation, as the above cases would seem to show, of an altogether new and equally fatal malady? This is a question of great interest. As just remarked, it is certainly an efficient and powerful agent, prompt and satisfactory in its action; hence the establishment of the several points respecting the character of the cases adapted to its power, the best manner of exhibition, so as to insure its good, and, at the same time, to guard against its bad effects, how far it should be carried, and the particular regimen best suiting, constitutes a great desideratum, which, as we are loth to abandon the remedy, we should rejoice to see supplied. In none of the books which we have consulted, is any allusion made to its action in retarding convalescence after it has acted happily in removing the original attack, nor do we find recorded any account of such accidents following its employment as those which, we have shown, befel our patients, whose original attacks were promptly arrested by its operation. Prof. Wood, in his recent work on the practice, speaks less favourably of this plan of treating pulmonary inflammations exclusively, than any modern author whose works are at hand. He has seen a fatal result hastened by its employment, and cautions against its use where there is gastric irritation. In the six cases mentioned by Laennec, which died out of forty patients treated by his cousin, A. Laennec, of Nantes, three, it is asserted, died in consequence of errors in regimen during convalescence. No account is given of the symptoms or the conditions which these errors induced, and it is unfortunate, since we are deprived of the benefits which might have arisen from a comparison with the effects which we have described as following its employment under somewhat similar circumstances. The great change in the character and action of the remedy, which clearly exists when administered after the plan directed in pneumonia, is an exceedingly curious fact. Ordinarily, we know, that but a single grain will produce powerful effects upon the system, but then administered grain after grain, may be hourly given without sensible action. When we consider, therefore, its ordinary powerful operation, it is not unreasonable to suppose that the exhibition of such quantities of the drug, making every allowance for the supposed antagonism to its effects which the disordered state of the organism is said to create, may produce a constitutional effect which might last long after the disease, for which it was administered, was eradicated. The solution of this problem is intimately blended with that of the modus operandi of the antimony under these circumstances. If we knew how the remedy acted to produce its good effects in inflammation, we could then judge with some certainty whether this action was likely to be afterwards pernicious to the *system.*

None of the theories extant throw satisfactory light upon this point; indeed, no two writers seem to explain it in the same way. In ascribing the tolerance of the remedy to the existence of an inflammatory diathesis at the time of its administration, Rasori, we conceive, overlooked an important fact, in not taking into consideration the interruption to the harmonious action of the nervous system, which must be created by so grave a state as acute inflammation in a vital organ, especially the lungs. We know that severe local disease does subvert the action of many remedies; under certain states, large quantities of opium, alcohol, &c., may be administered without producing their characteristic effects. In proportion, generally, to the destruction of the sympathy of the nervous system, or to the impairment of the general sensibility, do remedies cease to produce their usual efforts.

As it regards its modus operandi in curing inflammation, the most varied and opposite conclusions also prevail. Those authors who are most enthusiastic in its favour, contend that it does most good when it excites no evacuation. That it can operate favourably under these circumstances, is amply proved by its action in the cases above reported. Dr. A. T. Thompson, in an article in the *London Lancet*, for Aug. 1846, advances the hypothesis that tartarized antimony cures pneumonia, by acting topically on the gastro-enteric mucous membrane, through a sub-acute inflammation which it establishes in that tissue. He says that tolerance after the first dose is established, because this topical action afterwards prevents the absorption of the remedy into the blood. Its operation in our Case 5th, would seem to favour this conclusion, but then, in Cases 1st and 2d, in which more of the drug was employed, with equally good effect upon the disease, we see no trace whatever of any gastro-enteric irritation. The hypothesis obviously falls short of explaining the phenomenon. Indeed, what is fatal to the conclusion is the fact, that gastro-enteric inflammation frequently coexists with pneumonia, and so far from being regarded as salutary, as this view would hold out, it is always looked upon by the practitioner as a serious, and frequently fatal complication. There can be no doubt that the remedy operates more generally upon the organism, than this view, or most views which have been taken of its action, would seem to favour. The obscurity which rests over the subject, cannot, it seems, in the present state of our knowledge of the action of remedies upon the system, be penetrated. If it is conceded that the protracted use of large doses of the drug tends to the production of a state of the system allied to scurvy, or purpura hemorrhagica, as the result of some of the above cases would really seem to show, a conjecture relative to its *methodus medendi* might be hazarded, which certainly, we conceive, has plausibility for its recommendation. The essential nature of these diseases, scorbutus particularly, it is held by pathologists, consists in an alteration of the blood; which alteration, it is asserted by Dr. Laycock, of York, in a late article in the *Medical Gazette*, is due to a deficiency of its fibrin and plastic elements. Now, in inducing this result upon the circulating fluid, the tartarized antimony would operate in such a manner as directly to tend to the destruction of inflammation, since it thereby would remove what every one knows constitutes the chief element of this morbid process. But our object is not to advance an hypothesis; it is simply to record the facts as they were presented to us, leaving their explanation or application to those better qualified than ourselves. And, if we succeed in attracting the attention of such, and through that means, cause more light to be thrown upon the important points involved in the consideration of the subject, we shall conceive ourselves amply repaid for the trouble which we have been at in the preparation of this article.

Petersburgh, Nov. 10*th*, 1847.

ART. III.—*Vaginal Hysterotomy, and subsequent delivery with Forceps, with safety to both Mother and Child.* By GUNNING S. BEDFORD, M. D., Professor of Midwifery, and the Diseases of Women and Children in the University of New York.

ON Saturday, Nov. 6th, 1847, at five o'clock A. M., Doctor Alexander Clinton was summoned to attend Mrs. L., aged 36, in labour with her first child. Dr. Clinton had been for some time the family physician of Mrs. L., and had attended her in repeated, and occasionally severe attacks of nephritis. On reaching the house, he found Mrs. L., in labour, the pains being decided, and occurring with regularity at intervals of fifteen and twenty minutes. In his examination per vaginam, the Doctor was unable to detect the *os tincæ;* he very cautiously explored the vagina and presenting portion of the womb with his finger; and, after several fruitless attempts to find the mouth of the womb, he came to the conclusion that the difficulty of reaching the *os* was owing to mal-position of the organ—probably retroversion of the cervix. Accordingly, he waited until evening, when, the pains increasing in violence, and assuming an expulsive character, he again examined his patient, but with no better success. He then proposed a consultation, the patient having been in labour fourteen hours. My colleague, Professor Valentine Mott, was sent for; on hearing the particulars of the case, he made a vaginal examination; and, after repeated attempts, failed in finding the mouth of the womb. Professor Mott suggested that possibly some change would occur during the night in the position of the parts, which would enable him to reach the *os uteri*, and left the house with the promise that he would return in the morning. Doctor Clinton continued with his patient during the night, and the pains occurred regularly with more or less force. He made several examinations in the night, and could feel nothing but a globular, smooth, and uniform surface. In the morning, Nov. 7th, at ten o'clock, Professor Mott returned. The pains were then much more violent, and the patient suffered severely. He again attempted by examination to reach the mouth of the womb—and again failed. To use his own language, "I have seen a great many obstetric cases, and have attended almost every variety of parturition; but it is the first time, after 36 hours labour, that I could not feel the *os tincæ.*" The case was now assuming a dangerous character—the pains were frequent and expulsive, with an obliterated mouth of the womb. The fear, therefore, was rupture of this organ, and death of the patient, with but little chance for the life of the child. The husband and friends were informed of the precarious situation of the patient. Doctors Mott and Clinton decided to have additional consultation; and, at the request of these gentlemen, I met them at one o'clock on Sunday, the patient having been in more or less active labour for forty hours. On examining the patient I could not feel the slightest trace of an os tincæ; and I became satisfied, after a thorough exploration, that it was entirely obliterated. Under these circumstances, the death of the mother being inevitable without an operation, it was proposed to lay the womb open through the vagina; and, at the request of Drs. Mott and Clinton, I proceeded to perform the operation as follows: with a probe-pointed bistoury covered to within a few lines of its extremity with linen, and taking my finger as a guide, I made a bi-lateral section of the neck of the womb, extending the incision to within a line or two of the peritoneal cavity. The head of the child was immediately felt through the opening. The pains continued with violence, but there was no progress in the delivery—the neck of the womb was extremely hard and resisting, and presented to the touch after the incision, a cartilaginous feel. Doctor Mott and myself then left the patient in charge of Dr. Clinton, and returned again at six o'clock in the evening. At this time, although the pains had been severe, the head had not descended, nor had any impression been made on the opening. I then made an incision through the posterior lip. The patient was not in a condition to sustain blood-letting, and a weak solution of tartar emetic was administered with a view, if possible, of producing relaxation. Doctor Clinton remained with his patient, and promised, if anything occurred during the night, to inform us of it. We were both sent for at two o'clock, the patient suffering severely from violent and excessive pain, all of which produced little or no change on the head of the child. Dr. Mott having arrived before me, and finding Mrs. L. in great agony and fearing rupture of the uterus, enlarged the incision which I had already made, and also cut towards the two ischiatic bones. We remained until seven o'clock in the morning, when we left. The patient being much fatigued, a Dover's powder was ordered, which procured a comfortable sleep, and temporary immunity from suffering. We called again at eleven o'clock; the opening had dilated somewhat, and the head could be more distinctly felt, but it had not begun to engage in the pelvis. There was much heat about the parts, and the scalp was corrugated. The pains continued with regularity, losing nothing in violence, and about six o'clock on the evening of Monday, the patient's strength was evidently giving way, and her pulse rose to 140. In a word, the symptoms were most alarming. The question now presented itself, what was to be done? After mature deliberation, being essentially conservative in the whole management of the case, we determined to make an attempt to deliver with the forceps—certainly not an easy thing to do with the head at the superior strait, not begun to engage in the pelvis, and the opening of the womb not larger than a dollar piece, rigid and unyielding. The forceps, however, after a full view of all the circumstances, presented to us the most feasible means of effecting delivery. At the request of Doctors Mott and Clinton, I applied the forceps, and was fortunate, without much loss of time, in locking the instrument. The head was situated diagonally at the upper strait with flexion but partially made. At first, I directed my traction downwards and backwards, the handle of the forceps forming an acute angle with the axis of the inferior strait of the pelvis, and when I succeeded in flexing the chin of the child upon the sternum, I then rotated the handle of the instrument for the purpose of giving the demi-spiral movement to the head. In this way, after very great effort, I succeeded in bringing the head to the inferior strait, the occiput pressing on the perineum. At this stage of the operation, my arms and hands were nearly paralyzed, such was the force necessary to overcome the difficulty. I requested Doctor Mott, who was by my side, to relieve me, and he, after no inconsiderable effort, succeeded in bringing the head into the world—and our gratification was in no way diminished by the fact that the child was alive, an event certainly not to have been expected. As strange as it may appear, the only inconvenience experienced by the mother after delivery was an inability to pass her water—this continued for about two weeks, rendering it necessary to introduce the catheter twice daily for the purpose of relieving the bladder. The mother and child are in the enjoyment of excellent health, it being now three months since the operation.

It may, perhaps, be thought by some that the patient should have been delivered sooner, and that we subjected her to serious and unnecessary hazard in delaying the delivery by forceps. This reasoning might possibly be sustained on general principles—but, I think, it will be conceded that, in this individual case, we were not only justified in the delay, but the result proved the wisdom of the course we pursued. In my judgment, nothing, under the peculiar circumstances of the case, could have warranted any attempt at artificial delivery, *save an approach to exhaustion on the part of the mother, or the occurrence of some accident placing life in the most imminent peril.* The position of the fœtal head, and the condition of the mouth of the womb were such as to render extremely probable the failure of any attempt at delivery. The obvious indication, therefore, was to trust to nature as long as she was capable of acting, and for the accoucheur to proceed to artificial delivery the moment the general system exhibited evidences of prostration.

This is the second time I have performed the operations of *vaginal-hysterotomy*, and in both instances the lives of mother and child were saved. The first case occurred in a female, whose womb had been seriously injured in consequence of attempts made to occasion miscarriage by the notorious abortionist *Madame Restell.* The injury inflicted resulted in entire obliteration of the mouth of the womb. The patient was taken in labour, Dec. 18th, 1843, at 7 o'clock, P. M., and was attended by Drs. Vermeule and Holden. On the following day, at 7 P. M., I was requested to see her in consultation with these gentlemen. Her pains were violent, and she suffered intensely. On making an examination, it was quite evident that there was obliteration of the mouth of the womb. In the presence of Drs. Washington, Detmold, Doane, Vermeule, and Holden, I made a bi-lateral section of the uterus—and in ten minutes after the incision, the patient was delivered of a full-grown living child. The mother and child continued to do well without one untoward symptom.

I am not aware that this operation has ever been performed in America—at least, I have found no record of it. A full account of this case was published in the *New York Journal of Medicine* for March, 1843.

New York, Feb. 1st, 1848.

ART. IV.—*A Case of Traumatic Trismus successfully treated.* By WM. W. VALK, M. D., of Flushing, L. I.

TRAUMATIC tetanus, when fully developed in the human system, has so very generally proved fatal, that any case calculated to shed light upon its treatment, however feeble, seems worthy of being recorded, and, with this view, we report the following case.

"The numerous remedies which have been recommended in the treatment of this disease, have tended to produce great perplexity. Much, however, may be possibly attributed to the indiscriminate manner with which our most powerful medicines have been employed, and to the total absence of any principle in their administration. Want of success is not to be attributed to the inefficacy of the remedies employed, but to our ignorance of those symptoms which should direct their application." Whether or not "principle" had anything to do with the treatment in the case now to be related, will be discovered from its perusal.

Miss J. A. S——g, æt. 28, came under our care in May last. She had had more or less sore throat, relaxation of the uvula, and slight pain in the chest, for the preceding two years, yet her general health was not bad, her symptoms being the result of a decidedly scrofulous habit. She is in good flesh, has sufficient appetite, takes much exercise, and but for the *inconveniences* experienced from the irritation about the throat, (not constant,) might be regarded as in the enjoyment of *very good* health. She had been under the care of other physicians, by whom *local* means only were made use of, for the removal of the "inconveniences" mentioned, but the treatment had been without benefit to her. There was no pain or difficulty in swallowing, the greatest amount of uneasiness arising from a *sense of constriction* about the pharynx. The whole throat, as far as it could be seen, was redder than natural, and upon the surface numerous elevated points of a light colour. Occasionally the length of the uvula would excite cough, and feel unpleasant from its point resting on the root of the tongue. We put her on the use of *iodine* and *hyd. potassæ* with *sarsaparilla*, and once substituted for this the *ox. mur. hyd.* in doses of one-sixteenth of a grain, ter in die, which she took for a fortnight. This producing ptyalism, its further use was abandoned, and the *iodine*, &c., continued up to the time of the attack about to be described. The diet was carefully regulated and nutritious, and we had the satisfaction of finding, after four months' treatment, that our patient's condition was very much improved.

About the 15th Sept., this young lady called at our office to say, that a few days before, she had run a large splinter into the thumb of her right hand. It had passed down immediately beside the nail, and penetrated nearly an inch. At the time of the accident, the pain was severe, and on pulling out the splinter, she nearly fainted. Poultices had been applied, with *tinct. opii* in them, the pain was now less, no swelling, yet she felt apprehensive lest a piece of splinter still remained in the thumb. We proposed an incision, to which she, however, would not assent; we therefore directed the poultices continued, and she left. In a week she called again; though her thumb was better, it pained her only occasionally. On the 28th Sept., we were summoned to her residence, found her cheerful, thumb a little painful, a benumbed feeling in the right arm, stiffness of the limbs generally, the neck particularly so; some little difficulty in opening the mouth. She thought she had taken cold, and we hoped it might be so, though suspecting the mischief likely to ensue. Ordered pediluvium, frictions with warm camphorated spirit, and Dover's powder at bed time. On the 29th, symptoms the same; jaw *rather* more rigid; quite as cheerful as yesterday; could not imagine how she had taken *such a cold;* continued the treatment. On the 30th, tetanic symptoms manifest; jaw nearly closed; some difficulty in speaking and swallowing; slight spasmodic twitches in neck, back, and arms; spirits depressed. Ordered *calomel,* x grs., *acet. morphine,* ½ gr., blister to nape of neck, sixty drops of *McMunn's elix. opii* at 10 P. M.

Oct. 1. Jaw firmly closed; other symptoms as yesterday; pulse 98; no motion from bowels for two days. Ordered enemata of *ol. terebinth* every two hours until free evacuations are procured; beef tea for drink, the anodyne repeated at 10 P. M. Blister drew well.

2*d.* Seen twice to-day; symptoms no worse; bowels not moved effectually. Ordered *calomel,* 15 grs., turpentine enema at 11 A. M., and 4 P. M. Nourishment; poultices to jaw and neck, hot foot-bath at 8 P. M., anodyne at 9, thirty drops *vin. colchici* every two hours, blistered surface sprinkled with morphine.

3*d.* At our request Dr. James Macdonald visited her with us to-day. See is neither better nor worse; talks with some embarrassment; cannot lie down at all, as it brings on spasm; sits in easy chair, in a stooping posture, with head supported by assistants; pulse 103; bowels have been acted on sufficiently. Ordered *wine,* and *brandy and water freely,* nourishment, injections every two hours of watery solution of *assafœtida,* (strong,) and ʒi *laudanum.* At 8 P.M. to take ʒvi laudanum.

4*th.* Seen again by Dr. M.; appears rather easier; swallows with difficulty, as the act of doing so brings on spasm of the muscles of the pharynx. Same treatment as yesterday; tobacco leaf on blistered surface. At our visit in the afternoon, found her much excited; inclined to talk too much; pulse 130 and feeble. To be kept as quiet as possible, no visitors permitted to see her.

5*th.* She *seems* better to-day; pulse 115; less excitement; can take her nourishment, &c., more readily; no change of treatment.

6*th.* Dr. M. saw her with us to-day. Every symptom aggravated; pulse 140; strength failing; bowels confined; a fatal termination dreaded. Gave her four drops *ol. croton.* The stimulants and nourishment continued. In evening find her no better; we have scarcely a hope. Ordered a nutritive enemata, and to take the brandy as strong as possible. Croton oil has operated twice.

7*th.* No change since last night; pulse 130; bowels have been moved three times. Recollecting that in 1825, Dr. Mackie, (now of New Orleans, we think, then a student of medicine in Charleston, South Carolina, with Dr. North,) had cured a severe case of episthotonos with *large* doses of the *acetate of lead,* and perceiving the almost utter hopelessness of this case, we determined to use it. We ordered, ℞.—*Acet. plumbi* ʒi., *pulv. opii* iii. grs. Mix and divide into six parts; give one every hour. Nourishment and stimuli ad libitum. The wounded thumb is not at all sore, ulceration slight beside the nail, with a thin discharge; poultices have been constantly applied. In evening, found she had been lying on a cot bed part of the day; feels very weak; pulse 120; mouth and tongue very sore, *from being bitten;* deglutition difficult; has had several free evacuations; felt quite faint after each. The spasmodic twitches in the posterior muscles of the neck are more frequent and strong; no relaxation whatever of the jaw. We thought she might die during the night. Has taken three of the lead powders. Ordered blister from cervix to sacrum, half-ounce elix. opii, at 9 P. M. Stimuli, &c., as before.

8th. Dr. Kissam, of Jamaica, Long Island, met us this morning. Our patient is *decidedly* better; has had a comfortable night, lying down most of the time; deglutition is easier; countenance improved; pulse 120 and full; jaw *slightly* movable; spasmodic twitches less, no pain or uneasiness whatever. She has taken her nourishment very well, with a liberal portion of brandy. During the night, used a little ice water, and found it refreshing. The blister has drawn well; *we think the powders have been useful.* In consultation, Dr. Kissam was of opinion, that the original wound on the thumb should be laid open to the bone. Dr. Macdonald and myself assenting, our patient's acquiescence was desired. She at first refused, but in the course of half an hour decided to submit to the operation. She bore it well, it bled freely, but no foreign body was detected on examination. The main features of the treatment, it was decided not to vary, the blister to be dressed with turpentine, and *the remaining powders of lead* given. In the evening rather more difficulty of swallowing; tongue excessively sore. Does not feel as well as in the morning; pulse 121; the spasmodic jerkings rather more frequent; blister very sore, no pain in thumb. Has not taken as much nourishment as is desirable; dreads the attempt at deglutition; mind perfectly composed. Has set up the greater part of the day; when lying down the spasms are increased in force and frequency. Treatment not varied; an enema of strong beef tea and laudanum at 10 P. M.

9th. Dr. Kissam met us this morning; (Dr. Macdonald can only meet us every other day, as his city engagements interfere.) Patient much the same as yesterday; pulse 120; has perspired freely through the night; a little pain in abdomen; some spasm in both hands, and in lumbar region; the mouth and tongue extremely sore. Took considerable nourishment in the night, and some brandy. No change in treatment; has taken so far ʒi of the acet. plumbi; it has, we think, been of use. At evening visit found the patient a little improved; she is lying down; the pulse 112, and full; perspiring freely. The spasms do not increase in force; affect the legs more than at any previous time; they are most frequent when she is half asleep. Has taken nourishment moderately, but not as much stimulus as is desirable; uses ice water a good deal. The countenance looks better; perhaps some hope may be indulged of a favourable issue. Ordered to-night ʒiii of *acet. opii,* and to take thirty grs. of the lead in eight hours. Swallowing painful and embarrassing; nourishment and stimuli continued; flaxseed poultices to thumb, which feels benumbed.

10th. Drs. M. and K. present. No material change; is, perhaps, rather improved; pulse 110; perspiring freely; the spasms not so frequent; no discharge from the thumb. Ordered blister re-applied to spine for four hours, two drops of croton oil, and thumb dressed with *bals. Peru.* Stimuli, &c., continued. Has taken 90 grs. of the acetate of lead up to this time; it has not caused an unpleasant symptom; on the contrary, we think it has been beneficial. No change at 5 P.M. Continue general treatment.

11*th.* Seen with Drs. M. and K. Patient very much the same; pulse rather better, 105. Croton oil has operated twice freely; stools dark and offensive. No medicine ordered to-day; the stimuli to be pushed as far as possible, substituting port wine for the brandy.

12*th.* Found her rather better this morning; pulse 104; is disposed to "gape;" every way easy through the night. In afternoon more excitement; pulse 120. Ordered *pounded ice* to spine; stimuli and nourishment continued.

13*th.* Patient very much in the same condition as yesterday; pulse varies from 100 to 106. Deglutition easier; is perfectly free from all pain; the spasmodic jerks less in force and number. *Jaw still firm as ever.* On removing the poultice from the thumb this morning, *a piece of splinter three-fourths of an inch long was lying in the cavity of the incision made on the* 8*th*, having made its way to the surface. Dressed wound freely with bals. Peru, ordered *tobacco enemata* once in two hours, of strength ʒi to the pint of water, one-fourth of this each time. At evening visit did not find her as well as in the morning; pulse feeble, and 120. The enemata (twice given) have brought away a quantity of scybalous matter. We felt rather disappointed in the results obtained from the tobacco; they were not decided. *Ordered the remaining half-pint to be given at* 1 P.M. Go on with stimuli.

14*th.* Our patient is *better* to-day than at any time before; *perhaps* the tobacco enema last night has operated well. It caused decided nausea and vomiting, with no little effect as a sedative, lessening the spasmodic action materially, and tranquilizing the whole system. The jaw can be opened a little; pulse 110; countenance improved; lies with more ease, and swallows better. The wine and nourishment to be given freely; tobacco enema repeated at 7 P. M. The case is much more hopeful.

15*th.* Dr. Macdonald present. Miss S—— is decidedly improved; her pulse 105; spasmodic jerks lessening in force and frequency; takes her wine and nutriment freely; the case looks promising, and we cannot help thinking the *tobacco* has proved eminently useful. The blistered surface healing; dress it with "*ungt. tart. antim.*;" poultices removed from thumb; substitute the "*bals. Peru*" with simple cerate.

16*th.* Every way better to-day; pulse 100 and full, muscles of the jaw relaxing; can open her mouth a full half-inch; sits up for some time without support; appetite increasing; takes nourishment and wine freely; is quite cheerful. The tongue is still very sore; spasms less, and now confined to the lumbar muscles. Ordered "*ferri et quiniæ citras*," in eight grain doses, *ter in die*, and a weak tobacco enema at 7 P.M.

17*th.* No material change since yesterday; pulse 105; ordered a dose of "*salts* and *senna*."

18*th.* Not so well to-day; complains of nausea; pulse 108; feels weaker than yesterday, is more "nervous." Ordered "*acet. opii*" ℈i in brandy and water, to be repeated in an hour, if the first dose fails to calm the system.

19*th.* Patient better; pulse 92; the anodyne of yesterday perfectly allayed the nervous excitement and restlessness. Continues the wine, &c.

20th. During our temporary absence, Dr. McDonald saw our patient to-day. She improves slowly, and from this time to the 4th November, gained a little every day, her appetite increasing, and all unpleasant symptoms disappearing.

Nov. 5th. Is now entirely convalescent; goes up and down stairs, eats solid food readily, no difficulty at all in opening the mouth. Recommended a gradual reduction of the quantity of stimulus taken, and discontinued our visits.

In the treatment of this case, our efforts were mainly directed to sustaining a *stimulant* and *sedative* action upon the nervous system, assisting materially in the accomplishment of our design, by extensive and continued vesication of the whole spine. As far as this additional case can add to the testimony already before the profession, it is unequivocally favourable to the plan of treatment pursued. That *large doses* of the "*acet. plumbi*" deserve a further trial is, to our mind, clear, and we trust its value in similar cases will be fully tested.

[Our intelligent correspondent will, no doubt, excuse us for remarking, that the removal of the splinter on the 13th of October ought not to be overlooked, as having probably been conducive to the favourable change in the condition of the patient observed on the following day; and that it may even be suspected to have largely influenced the favourable termination of the case.—EDITOR.]

ART. V.—*Case of Gunshot Wound of the Neck, involving the Trachea, Œsophagus, the Right Internal Jugular Vein, and the Right Subclavian Artery, and terminating fatally on the fourteenth day, in consequence of the formation of an Abscess in front of the Spine.* By S. D. GROSS, M. D., Prof. of Surgery in the Medical Department of the University of Louisville.

FOR the report of the following case, so interesting both in a pathological and a surgical point of view, I am indebted to my talented and zealous pupil, Mr. T. G. Richardson, one of the assistant demonstrators of Anatomy in our University.

On the 14th of September, 1846, J. K., a lad, fourteen years of age, of a scrofulous constitution, the son of a merchant of this city, was wounded by the accidental discharge of a gun, upon which he was supporting himself with his right hand in the act of jumping from a fence. The principal part of the load, which consisted of large squirrel shot, was expended upon the extremities of the fingers, the wrist, and forearm of the same side, producing a deep lacerated wound in the direction of the bend of the elbow, while the remainder entered the anterior and lateral portions of the neck at four or five different points. Three or four of the shot entered together immediately above the middle of the clavicle of the right side; one perforated the trachea; another lodged in the region of the right internal jugular vein; and a third penetrated the skin a short distance from the left border of the wind-pipe, passing about one-third around the neck in the subcutaneous cellular tissue, in which it could be distinctly felt.

The wounds were attended with little hemorrhage, and the patient soon recovered from the shock consequent upon the injury. Professor Gross removed the last phalanges of two of the fingers, directed cold water to be applied to the wounds of the wrist and forearm, and enjoined a strict observance of the antiphlogistic regimen.

The next day there was some traumatic fever, with slight emphysema around the opening in the trachea, some difficulty in swallowing and expectoration, and an increased secretion from the air-passages. A gentle laxative was prescribed, and the cold water dressing continued.

For a time everything went on favourably; the wounds in the neck healed without any application, the sore in the forearm became covered with healthy granulations, and the general health seemed to be perfect. Suddenly, however, on the 27th of Sept.—thirteen days after the accident—and without any premonitory symptoms, the patient was seized with a protracted epileptic convulsion, chiefly affecting the left side, and died the following day without any return of consciousness.

Autopsy.—The shot that had perforated the trachea was found to have passed also through the œsophagus, and to be imbedded in the fibro-cartilage between the third and fourth cervical vertebra. The œsophagus at this point was separated from the spine by an abscess, extending from the second to the seventh cervical vertebra, and containing about three-fourths of an ounce of scrofulous pus. The openings made in the wind-pipe, and the anterior wall of the gullet, were closed, but the one in the posterior wall of the latter tube was still patent, and communicated with the cavity of the abscess, without, however, permitting any escape of its contents. The parts around the purulent depot were indurated by a copious effusion of lymph, which, on the left side, intimately glued together the common carotid artery and jugular vein, the pneumogastric and sympathetic nerves, and with the descending branch of the ninth pair.

One of the shot which entered above the clavicle of the right side had perforated the subclavian artery, and lodged in the first rib. The calibre of the vessel was perfectly pervious, and the openings in its walls were beautifully closed by a small clot extending around the outside of the tube. Upon removing this clot, which was the only effused blood in the neighbourhood, the margins appeared as if the wound had just been inflicted. No marks of inflammation of the artery were observed. The remainder of the shot that entered at this point were found upon the same rib, on the outside of the brachial plexus of nerves, completely encysted.

The shot that entered the region of the right jugular and carotid, had perforated the anterior wall of the former vessel, and lodged on the inner surface of the opposite wall, where it had become completely encysted. The vein bore no evidence of inflammation; its cavity, however, was somewhat diminished by the projecting cyst; the opening in front was perfectly closed; and there was no external or internal clot.

No morbid appearances were discovered in the brain or spinal cord, except a little serum in the lateral ventricles of the former.

Louisville, Dec. 13, 1847.

Art. VI.—*Ligature of both Primitive Carotids.* By George C. Blackman, M. D., Fellow of the Royal Medical and Chirurgical Society of London.

My object in the following report, is to add another to the list of successful cases of ligature of both carotids. The *principle* involved in the operation, and the *final result* of the case, whether favourable or unfavourable, will form the subject of a future communication.

On the 24th of August last, I tied the right primitive carotid artery, on a son of Mr. Gideon Birdsall of Plattekill, who was about fifteen years of age. The circumstances which gave rise to this operation were as follows: Some two years before, a surgeon had attempted to remove what was supposed to have been a polypus from the right nostril. In this attempt he was but partially successful, and the failure was attributed to the restlessness of the patient, &c. &c. But there is reason to believe, from facts subsequently developed, that the fleshy growth proceeded originally from the right maxillary sinus, instead of from the nose itself. This firm vascular mass continued to increase in size, and so to encroach upon the left nostril as to prevent the patient from breathing through either nasal aperture. It was subject to frequent attacks of bleeding, and the boy's health was rapidly failing. In this condition he consulted one of the oldest and first surgeons in New York, who made another attempt to remove the fungous growth which protruded from the nose, but was obliged to desist in consequence of the excessive hemorrhage to which it gave rise. This surgeon dismissed the patient with the advice never to submit to another effort of the kind; but if he suffered anything more to be done, to have a ligature placed upon the carotid artery of that side, for the purpose of arresting the growth of the tumour and prolonging his life. As the parents of the boy resided in the vicinity of Newburgh, they called upon me to perform the operation. During the interval which passed from the time he left New York, (in May,) till the period when he came under my care (in August), the disease had become much more extensive than it was at the time this last effort at its extirpation had been made. The right cheek had become enormously swollen, and there was a small tumour just beneath the skin and about an inch below the external angle of the eye, which, together with the general appearance of the boy, told too plainly of the malignant nature of the morbid growth, and of the hopelessness of the case. I frankly told the parents, and the patient, how little they could expect from any treatment which might be adopted.

I made them fully acquainted with the hazardous character of the proposed operation, and expressed to them my doubts whether the benefits to be gained would compensate for the risk which the patient must encounter from its performance. The attacks of bleeding had now become more frequent, and it was evident to all, that, unless the disease was checked, the patient could survive but a very short time.

Seeing the inevitable fate which awaited him, after two days' deliberation, the parents and the boy determined to avail themselves of the chance, however slight, which the operation might offer, and it was accordingly performed on the day above mentioned, in the presence of several physicians from Newburgh and the adjoining towns. Nothing worthy of note occurred during or after the operation. The ligature came away on the 13th day, and the whole wound was soon healed. The effect of this proceeding was most decided in arresting the growth of the morbid mass, and in diminishing the tumefaction of cheek. In the course of a fortnight, however, he began to complain of considerable uneasiness about the junction of the upper lip with the right ala of the nose, at which point there was some swelling. The cause of this was soon explained by the appearance of a fungous growth on the under side of the upper lip, which increased so rapidly as to protrude, in four or five days, something like an inch below its margin, and which prevented him from longer taking solid food. Besides it bled repeatedly, and it became very soon apparent, that unless the left carotid was tied, all that had been gained by the first operation would be lost. Indeed, the whole aspect of the case was now most unpromising. After a full examination of all the dangers connected with a second operation, they concluded to have it done. At this period, three weeks after the first operation, the mass which protruded from the nose was shriveled, and instead of the red, vascular appearance which it before presented, it was now of a dark colour. The septum of the nose and the left nasal aperture which were before concealed, were now distinctly visible, and with the exception of the fungous growth in the mouth, the patient's appearance had considerably improved. The livid appearance of the skin over the little tumour below the outer angle of the eye, had changed for the better, and the tumour itself had decreased in size.

During the last operation, one or two circumstances occurred which it may be well to mention. The ligature in this instance was placed above, whilst in the other, just below the omo-hyoideus. A large vein was seen running parallel with the artery, just above its sheath, and recollecting the case which occurred to Dr. Warren, where the patient nearly perished from the admission of air, every precaution was taken to guard against such an accident. In this, I was greatly assisted by my friend Dr. Bowman, of Modena, who drew it aside, while I opened the sheath. In neither case was the par vagum exposed, the carotid sheath having been opened to an extent barely sufficient to admit the aneurism needle. When the ligature had been carried round the artery, the patient was carried to his bed, and allowed to remain with his head low, for some twenty minutes, at the end of which time, I gradually drew the first knot. The patient was then asked if he felt anything different from usual. He replied, he thought not. This was no sooner spoken than vision in the left eye was lost. Apprehensive that more serious consequences would soon follow, I waited half an hour, and as by this time his sight had become partially restored, I ventured to make the second knot and close the wound. From this moment not an unpleasant symptom followed, with the exception that for some weeks his memory was impaired, and he did not perfectly regain his sight. Both these faculties now (six months after the operation), seem to be of their natural strength. The last ligature came away on the 14th day, and in a day or two after the wound was united. To see whether allowing both ends of the ligature to remain, would, by the more copious suppuration which it might produce, expedite its detachment, I omitted in the latter instance, to cut off one end, but, as we have already stated, it was not separated until the 14th day.

In less than a week from the last operation, the protruding growths, both from the nose and mouth, had dropped off. His tongue, which for weeks had been coated, became clean; his appetite good, and in a few weeks he was able to ride, as he did, some 30 miles.

His strength is now about natural; the swelling in his face is constantly subsiding; there is no trace remaining either of the fungous mass in the nose, or of that which protruded from the mouth: and whatever may be the *final result* of the case, one thing is *certain*, that a patient, who, had it not been for the steps which have been taken, must, weeks ago, have been in his grave, is now in the enjoyment of tolerable health, and from present appearances bids fair to live for *months*, if not for *years* to come.

Newburgh, New York, Feb. 1848.

ART. VII.—*Statistics of Large Surgical Operations.* By USHER PARSONS, M. D., formerly President of the Society. (Communicated for publication by the Rhode Island Medical Society, before whom it was read.)

THE medical profession have occasionally been favoured with valuable reports from hospital surgeons, on the results of large surgical operations that have occurred in hospital practice, particularly by Drs. Norris and Hayward, of this country, and by several European surgeons. It has occurred to me, that similar reports from private practitioners would possess some interest. I therefore present the following brief summary of cases that have come under my care, during a practice of thirty-five years, hoping that other practitioners advanced in life, will pursue a similar course.

No.	Name.	Age.	Year.	TREPANNING.	
1.	John Newen,	30	1813	A piece of his hat and of bone buried two inches in the cerebrum.	Trepanned parietal bone. Died on 3d day.
2.	J. Goff,	17	1839	A heavy bolt, one inch in diameter, entered the parietal bone two inches, and drove in a piece of the bone.	Trepanned the same day. Died on 5th day.
3.	J. Burdick,	10	1840	Five pieces of bone, making a surface of one inch square, driven in by the kick of a horse.	Recovered.
4.	J. Lathan,	8	1842	A portion of the frontal bone, near its junction with the temporal and parietal, driven in nearly an inch, by the kick of a horse. In all the above cases, there was abolition of sense, and the membranes of the brain were perforated. In three other cases, of 8, 11, and 12 years of age, the skull was fractured and slightly depressed; but not sufficiently so to abolish sense. These all recovered without any operation, by depleting treatment.	Trepanned the same day. Recovered.
				LITHOTOMY.	
	John Carder,	74	1846	The stone three inches in circumference. The operation was performed in very hot weather, in July. The lateral operation was performed, with the bistouri cachée.	Cured.
				LIGATURE OF CAROTID ARTERY.	
	J. Mann,	19	1846	Affected with intense headache, remittent in its character. There was total blindness. After a great variety of treatment, the disease having existed two years, he was advised by learned counsel in Boston, to have the carotid artery tied.	There was great abatement of pain for some weeks; but it returned, and he died in a few months after.
				EXTIRPATION OF THE EYE.	
	Gov. Collins,	68	1842	Had been long affected with fungus hematodes of the eyeball, which projected nearly an inch beyond the lids. I cleared out the whole socket. He recovered to all appearance perfectly, and remained well for more than two years, when the fungus grew again from the socket, and was beginning to project through the lids. I operated again in May 1844, but found the socket filled with bony, as well as soft material. He died a few months after.	

EXTIRPATION OF CANCEROUS BREASTS.

No.	Name.	Age.	Year.	Subsequent History.
1.	Mrs. Arnold,	46	1823	The disease re-appeared in less than one year in the cicatrix, and soon involved the lung. She died within eighteen months.
2.	Mrs. Whitman,	40	1830	Re-appeared within a year in the axilla, was extirpated again, and afterward cauterized by a quack. She died of it in two years.
3.	Mrs. Swift,	54	1830	She died of colic three years after; no return of cancer.
4.	Mrs. Alexander,	42	1834	She died suddenly of pneumonia in about one year; cancer had not re-appeared.
5.	Miss Marsh,	54	1836	Re-appeared in the cicatrix in six months, and she died within one year.
6.	Mrs. Field,	48	1836	Re-appeared in the cicatrix in three months, and she died in six.
7.	Mrs. Bonney,	27	1836	It has not re-appeared after a lapse of eleven years.
8.	Mrs. Wells,	46	1840	Re-appeared in six months, and she died within one year.
9.	Miss Paine,	34	1841	It has not returned after a lapse of six years.
10.	Mrs. Almy,	38	1842	She died of tubercular consumption, about five years after; no re-appearance of cancer.
11.	Mrs. Needham,	44	1843	Re-appeared; and she died within two years.
12.	Miss Burr,	46	1844	This was a second operation on the same breast. It was again operated on in one year after; but it returned a third time and proved fatal.
13.	Mrs. Macomber,	40	1845	Re-appeared in one year, and proved fatal.
14.	Mrs. Cole,	41	1845	A portion of the breast had been previously removed. She died within eighteen months.
15.	Mrs. Folsom,	39	1847	Has not re-appeared.
16.	Mrs. Bosworth,	35	1847	Has not re-appeared.

Of the above 16 cases, the disease re-appeared in 9, and proved fatal within two years after. Two died soon after of other diseases, and others within five years; and one other was operated on within a few months past; thus leaving only 4 out of the 16, which can be pronounced successful, and one of these was but recently discovered when operated on. It would, therefore, be near the truth to say, that less than one in four proved successful. In a Boylston Prize Essay, published a dozen years since, on Cancerous Breast, I stated as the result of my inquiries, that relapses occurred in this country in at least two-thirds of the cases. Judging from my own later experience, I ought to have said, more than three-fourths. I remarked in the above-mentioned essay that, "one cannot but feel surprised in reading the difference in the reports, given by surgeons of the first eminence, in respect to the proportion of relapses that have occurred in their own practice. The elder Monroe said, that of sixty persons operated upon for cancer, four only had not relapsed after two years. Scarpa had only seen three cases, where the extirpation of cancer was not followed by relapse. According to Boyer, four or five only out of one hundred were permanently cured by extirpation. Mr. Home describes seventeen cases of extirpated cancerous breast, five only of which proved successful. On the other hand, Mr. Hill, a surgeon of Dumfries, in Scotland, reports eighty-eight cases of extirpated cancer, six out of seven of which proved successful. Mr. Nooth says that not more than one in thirty of his patients experienced a relapse. Mr. Fearon's experience is nearly as favourable. Sir Astley Cooper estimates the failures of entire cure at three-fourths."

The above cases had all become painful before the operation, excepting No. 7, but none of them had become open cancers. They re-appeared sometimes in the cicatrix, notwithstanding the utmost care was taken to remove all that was diseased, and even to encroach everywhere upon sound flesh; at other times, the disease returned in the axilla, and in the other breast.

The patients all bore the operation well, giving no signs of syncope in a single instance. Secondary hemorrhage, requiring the wound to be opened, occurred in one case, No. 8. In the last two cases, ether was employed.

No.	Name.	Age.	Year.	AMPUTATIONS OF THE LARGE LIMBS. CAUSE.	Time after injury, or first appearance of disease.	Place.	Result.
1.	John L. Graham,	20	1812	Compound comminuted fracture of tibia and fibula, by a grape shot. Extensive ulcerations and declining health.	40th day	above knee	Cured.
2.	Wm. Thompson,	24	1813	Leg nearly severed by a cannon ball.	next day	above knee	"
3.	James Moses,	23	1813	Arm nearly severed, at the insertion of the deltoid.	next day	3 inches below shoulder joint	"
4.	George Varnum,	27	1813	Knee nearly carried away by a cannon-ball.	next day	above knee	"
5.	John Schrouder,	26	1813	Arm fractured near the elbow, followed by necrosis of humerus.	after 8 months	at middle of humerus	"
6.	Hugh McCormick,	27	1818	Necrosis of condyles of femur, from violent injury.	after 6 months	above knee	"
7.	Dennis Fitz,	28	1819	Necrosis of ankle-joint, from violent injury.	after 6 weeks	below knee	"
8.	J. Baldwin,	20	1823	Necrosis of head of tibia, from severe contusion.	1 year after 2 months	above knee	"
9.	J. Curtis,	13	1827	Fungus hematodes at bend of arm.	1 year after first appearance	at middle of arm	"
10.	Gwinn Kelly,	50	1828	Compound fracture of leg; lacerations; and divided artery.	next day	above knee	"
11.	Captain Cummings,	40	1829	Compound and comminuted fracture of leg.	same day	below knee	Died same evening.
12.	J. Goodspeed,	58	1829	Hand and wrist crushed and mangled in machinery.	same day	above wrist	Cured.
13.	Thomas Green,	48	1829	Arm crushed and mangled in machinery.	same day	above elbow	"
14.	J. Robinson,	40	1829	Leg fractured; phlegmonous erysipelas and gangrene.	after three weeks	above knee	"
15.	Joshua Smith,	67	1833	Leg and knee mangled by heavy cart-wheels.	same evening	above knee	Died same evening.
16.	Captain S. Olmy,	70	1833	Fungus hematodes in bend of arm, with emaciation.	18 months after first appearance	middle of humerus	Cured.
17.	Otis Walcot,	67	1834	Cancer in bend of arm, with emaciation.	18 months after first appearance	middle of humerus	"
18.	David Whiting,	56	1834	Compound and comminuted fracture of leg; declining health.	after 6 weeks	above knee	"
19.	J. Bates,	24	1840	Cancer of leg below knee, involving the tibia.	2 years after appearance	above knee	"
20.	J. Sweet,	63	1840	Dry gangrene from ossification and obstruction of arteries by calcareous deposit.	three months after commencement	above knee	"
21.	John Philips,	50	1845	Necrosis of humerus, from the capsular ligament down half its length; the bone having separated into two pieces.	three months after commencement	at shoulder joint	"
22.	J. Austin,	76	1845	Dry gangrene of foot and part of leg;—like case No. 20.	6 weeks after commencement	above knee	"
23.	Wm. Carr,	35	1847	Compound and comminuted fracture of bones near ankle; declining health.	6 weeks after injury	below knee	"
24.	J. Farnum,	40	1847	Frostbite of foot; necrosis of the astragalus.	6 months after injury	at ankle joint	"

Of the above twenty-four cases, twenty-two recovered, and two died, both within twelve hours after the operation. One of these, No. 15, probably had some internal injury. The other, No. 11, died within a few hours, without any such injury, or any assignable cause. I have always regretted that the operation had not been delayed at least twenty-four hours in both cases. It is not sufficient that the pulse be, by the use of stimulants, somewhat improved, after a severe injury requiring amputation. The reaction should be well established, and this may require 24 hours. In cases 2, 3, and 4, which occurred in the battle of Lake Erie, I operated 24 hours after the injury, and they all did remarkably well, better, I am confident, judging from the two fatal cases, 11 and 15, than if I had operated on the day of the injury.

In the four cases, Nos. 9, 16, 17, 19, where the cause of amputation was fungus hematodes or cancer, the stumps all healed kindly, and they seemed to be doing well for some months; but all proved fatal within one year, from cancer of the internal organs.

Cases 20 and 22 presented ossified arteries in the amputated limbs. The operation was performed reluctantly, from an impression received from books that they would certainly prove fatal. Although there was room below the knee for making the stump in apparently sound parts, yet, from the ossified state of the arteries, it was deemed safer to go above it, where the pulsations could be felt. It was a fortunate decision, as subsequent examination of the limb showed the artery to be quite obstructed, below the division of the popliteal, by calcareous deposit. I should hereafter feel more confidence in amputation in gangrena senilis, by keeping this fact in view.

The circular operation was performed in all but two of the 24 cases. No secondary hemorrhage ensued in any case.

In the amputation at the ankle-joint, covering was obtained from the sides of the foot, the two projecting malleoli being sawn off.

Etherization was used in only one case, No. 23.

No.	Name.	Age.	Year.	STRANGULATED HERNIA.	Strangulation had existed.	Result.
1.	Elisha Olney,	64	1823	Scrotal hernia, of right side. Intestine and omentum down. Pain not severe. Some nausea. Hernia of many years' standing.	48 hours.	Cured.
2.	Edward Mason,	72	1826	Scrotal hernia, of left side. Intestine and omentum down. Pain very severe.	16 "	Died next day.
3.	Jabez Bullock,	58	1831	Scrotal hernia, of right side. Intestine and omentum down. Pain not severe. A piece of omentum could not be reduced, and was cut away, weighing seven ounces.	30 "	Cured.
4.	Truman Beckwith,	53	1833	Scrotal hernia, of right side. Intestine and omentum down. Pain gradually increased in severity. Nausea.	24 "	"
5.	Nathan Horton,	38	1834	Scrotal hernia, of right side. Intestine only down. Pain gradually increased in severity. Nausea.	30 "	"
6.	Augustus Winsor,	70	1835	Scrotal hernia, of right side. Intestine and omentum down. Pain intense. Intestine found to be very black.	9 "	Died.
7.	Charles Millard,	48	1841	Scrotal hernia, of right side. Intestine and omentum down. Pain not very severe.	30 "	Cured.
8.	J. Ellerbacher,	45	1846	Scrotal hernia, of right side. Omentum only down. Little pain.	48 "	"
9.	Caleb Cushing,	68	1847	Scrotal hernia, of right side. A large mass of intestine and omentum down. Pain severe.	16 "	"
10.	Edward Carr,	60	1848	Scrotal hernia, of right side. A large mass of intestine and omentum down. Pain considerable; some nausea. This case occurred since this paper was read to the society.	30 "	"
11.	Mrs. Burr,	74	1843	Umbilical hernia, of many years' standing. Intestine and omentum protruded.	30 "	"
12.	Mrs. Farnum,	54	1845	Umbilical hernia, of many years' standing. Intestine and omentum protruded largely. She survived five weeks. The omentum, though returned, sloughed, and was discharged through the wound.	36 "	Died five weeks later.
13.	Mrs. E. White,	46	1837	Femoral hernia. Not very painful.	38 "	Cured.
14.	Mrs. Parker,	76	1846	Femoral hernia. Not very painful.	40 "	"
15.	Miss Sturtevant,	44	1846	Femoral hernia. Very painful. Vomiting.	20 "	Died.

The whole number of cases of strangulated hernia was 15, viz., 10 scrotal, 2 umbilical, and 3 femoral.

Of these Nos. 2 and 6 (scrotal), No. 15 (femoral), and No. 12 (umbilical), died. These were all very painful from the first. Those which were longest delayed were least painful. The cases show that lapse of time is less to be regarded as urging to the operation than degree of pain. Of the 10 scrotal, 9 were on the right side. Five of the scrotal were operated on in the right; also one of the umbilical and two of the femoral

ART. VIII.—*Midwifery Statistics from Private Practice.* By H. PLEASANTS, M. D., of West Philadelphia.

THE following brief notes attentively taken during attendance on a number of labours occurring in this vicinity within a few years, and also some practical observations founded on experience derived from these and other cases not recorded in this paper, are offered to the profession as a small contribution to our science.

The subjects of these cases were principally Americans:—293 had been previously delivered; 123 were 1st labours; unnoted, 4; total, 420. Of these, 395 were at or near full term; 25 early in pregnancy.

These labours occurred in the following number in each month.

Jan.	28	May	32	Sept.	29
Feb.	24	June	34	Oct.	44
March	37	July	39	Nov.	35
April	28	August	29	Dec.	36

Total at full term, 395.

Five of these labours at full term were double, and all consequently afforded 400 presentations. These were of the head, 356; breech, 7; feet, 3; unnoted, 34.

Of these 356 head presentations, there were placed in the 1st position, 268; 2d, 43; 4th, 10; 5th, 4; face, 5; unnoted, 26; total, 356.

Many of these cases of 1st and 2d positions were, at the commencement of labour, detected in the 4th or 5th positions; and indeed, since my attention has been directed to the subject, a majority of head presentations have, *when a satisfactory examination could be effected*, been observed to present the vertex posteriorly at the *commencement* of labour. Under such circumstances the natural efforts have generally brought the vertex under the pubic arch, as labour progressed; but in others, pressure at the sides of the cranium has been advantageously resorted to, while in a few, detected only in the latter period of labour, no efforts deemed proper have been successful in effecting this desirable rotation.

From the above observations and known natural cause of rotation of the head, we infer, that the means ordinarily advised to rectify the postero-vertical position of the head should always be deferred until the head shall have reached those planes calculated to direct the vertex anteriorly; that interference before that time will be frequently unnecessary, and in the latter periods of labour inadequate to accomplish the object.

The average duration of labour in the above cases was about six hours; the extremes one and forty-eight. Labours giving birth to males were more protracted than those resulting in female births as 6·3 to 5·3.

On this subject, however, experience is more likely to vary than on most subjects here analyzed, owing to the difficulty of deciding the exact time of commencing labour. The pains are of course very fallacious, every practitioner of even small experience, having been called to patients suffering from pains, regarded by themselves and female attendants, similar to former labours, but which the tactus eruditus has instantly distinguished. These pains, being frequently precursors of genuine labour, confound all statements of the patient or attendants, while the time elapsing before the physician is summoned or procured, renders most statements of the duration of labour little to be relied on.

The most important complications, which occurred previously to delivery, occasioning great anxiety or delay, were—

Two cases of placenta prævia and consequent flooding.

Two cases of puerperal convulsions.

Four cases of mal-position of the head.

One case of disproportionately large size of child.

One case of prolapsed cord.

The first case of placenta prævia occurred in the fourth pregnancy of a very vigorous woman, aged thirty years; there had been frequent uterine hemorrhages, occurring during the latter two months of gestation. The discharge became excessive immediately preceding labour pains at full term. The recumbent position, quietude, cool air and the tampon were used with only partial success; and after the dilatation of the os uteri, the hand was introduced at the side of the placenta, both feet grasped, and the woman easily and rapidly delivered of a large male infant dead at the time of birth. In this case the middle of the placenta was over the os uteri. After some hemorrhagic reaction lasting for a few days and requiring very little and mild treatment, the woman was soon fully restored.

The subject of the second case of placenta prævia was thirty-five years of age, of a relaxed fibre, and in her eighth pregnancy; here flooding did not supervene until five days before labour, and was, at first, completely under control of the means resorted to at the commencement of the preceding case; but when severe protruding pains came on these agents were inadequate to suppress the discharge which, nothwithstanding their use, became excessive. The pelvis here being large and the pains powerful, the child, which was small and presenting most favourably, was soon expelled by the unassisted efforts of nature. Here the edge only of the placenta was over the os uteri. This patient suffered for a long time from the effects of excessive loss of blood; violent hemorrhagic reaction primarily supervened; then dropsical effusions in extremities and abdomen; and for many months, great debility continued: but under a mild temporizing plan of treatment, as in the first case, with diuretics of juniper berry tea and sweet spirits of nitre, she recovered perfectly.

The first case of puerperal convulsions occurred in a healthy young English woman at the commencement of her first labour; these convulsions were of the epileptic character. The treatment consisted of general and local bleeding, and proved adequate to overcome the convulsions several hours previous to delivery. Here the natural uterine efforts effected delivery in about ten hours subequent to the first convulsion—and no unpleasant symptoms followed.

The second case of puerperal convulsions was of a decidedly apoplectic character. The patient was a healthy woman, twenty-seven years of age, who had passed well through two labours ending with the birth of healthy children. From the commencement of labour and previously to my taking charge of her, almost complete insensibility was present. The labour was a little premature and apparently excited by a slight blow upon the abdomen. I did not see her in labour until after the first convulsion, which occurred at four P. M., Dec. 11, 1844. When I first saw her, I was informed, that she had been in ordinary good health previous to the day of her attack—had complained on that morning of much pain in the head and sickness at stomach, and had vomited several times. At the time of my seeing her, her intellect was very dull—eyes fixed excepting whilst convulsed; the pupils dilated—pulse frequent and feeble, extremities and *head cool.* During the convulsion her whole muscular system was frequently and powerfully agitated; and at this time slight and not protruding pains were present. For these symptoms I advised a stimulating injection into bowels—sinapisms to extremities, and after the pulse rose a little, v. s. to ℥viij, making an evident approach to syncope. The convulsions still continued to recur with unabated violence at each recurrence of uterine contraction. Dr. J. F. Meigs saw this patient with me at eight o'clock, P. M. Soon afterwards she was again bled to the same extent as before, and laudanum, gtt. lx. administered. About this time the purgative enema came away without any feculent evacuation. At ten o'clock the laudanum had been given three times, the convulsions still continuing unabated either in frequency or violence, and as the os uteri was found well dilated and soft it was thought advisable to deliver as speedily as possible. The short forceps were therefore easily applied to the head presenting in the first position, and already descended to the inferior strait, and a small female was extracted without any difficulty. From this period, though the coma remained, there was no convulsion until four o'clock A. M. of the 12th; this was stated, by the attendants, to be of the same character as those previous to delivery.

At nine o'clock A. M., on the 12th, I found her much as when we left her nine hours before; the pulse had risen, however, and the skin generally was hotter. ℞.—V. S. ℥viij. ℞.—Hydrarg. submuriat.; pulv. opii, āā gr. j. in one pill to be taken every two hours. Died at five o'clock P. M., having taken only two pills. No examination of the body was permitted in this case, which is the only death I have ever observed as a consequence of parturition.

One of the four cases of mal-position of the head, I was called to August 29th, 1843, by another practitioner, who stated, that the female had been in labour about thirty hours; that the waters had been evacuated for fifteen hours; that immediately after their evacuation the pains had been very powerful, and had caused the head to descend into the position it then occupied; that, for the last few hours, the pains had continued to decrease, and appeared to exert no beneficial effect; that he had endeavoured to re-excite the uterine contractions by administering ergot, but no advantage had been gained; that, subsequently, he had endeavoured to effect delivery by the forceps, but could not succeed in his attempts. The patient was a small, healthy woman, about thirty years of age, who had previously passed through four labours naturally, without any untoward symptom. I found her, as may be supposed, much exhausted; the countenance was expressive of great anxiety and suffering; the pulse was full and 140 per minute. There were frequent attacks of vomiting, and a great feeling of general uneasiness. The bowels and bladder had been evacuated a few hours before. Upon examination, the vulva was found much swollen, dry, and warm. The vertex presenting to the left, and not to have descended sufficiently with the forehead, thereby causing the head to be jammed between opposite sides of the pelvis. Considering that delivery should be accomplished as soon as possible, we endeavoured to prepare her system for further efforts, by administering mild nourishment, containing a small quantity of brandy, also ordering one hundred drops of laudanum and quietude, till the effects of these means were observed. At 5½ o'clock P. M., one hour subsequent to the period above referred to, we again met, having Dr. J. F. Meigs to assist us. The woman was now much easier; the vomiting had ceased; the pulse was stronger, and 120 per minute. The pains were still full, and had effected no change on the head, which continued in the situation above specified. We endeavoured to rotate the vertex towards the symphysis, first, by the hand, and, subsequently by the vectis and forceps, but utterly failed in all our attempts. Deeming further delay improper, and being satisfied of the death of the child, we determined on the propriety of craniotomy; this was skilfully performed by Dr. Meigs, and the woman, by the application of the forceps to the empty and contractable cranium, was delivered of a large male about 8 o'clock, P. M. During the operation, it was requisite to support our patient with wine and nourishment, and to administer laudanum. Her pulse, which had risen to 150 per minute, fell, within an hour after delivery, down to 100, and the woman felt almost as comfortable as after ordinary labours. No unpleasant symptoms succeeded, and the female soon recovered her ordinary good health.

Three of the remaining cases noted as mal-positions of the head, presented the root of the nose to the symphysis pubis, and the unassisted efforts of the uterus in the first and third cases, appeared to be unable to effect delivery. In each of these, detected only after the head had descended into the lower portion of the pelvis, and several hours had passed in severe labour, the fore and middle fingers of the right hand were pressed against the roof of the orbits, and by thus drawing the forehead downwards, and pressing it back, the cases were converted into the position of first face presentations, at the latter periods of labour. This change was very easily effected, and in the course of half an hour after the attempt to rectify this position, the females were delivered of living children, without more suffering than commonly attends the ordinary efforts in the last period of vertex cases.

In noticing these two cases attentively, in their passage under the arch of the pubes, I found that the anterior inferior edge of the upper maxillary bone offered closely under the arch, and, being there pressed by the forces applied against the forehead and vertex, descended, while the chin remained arrested in its descent by the opposing symphysis. The mouth being thus opened received the convexity of the bones, and thereby a slight decrease in this diameter of the child's head was produced. After the anterior inferior portion of the upper maxillary bone had thus descended, the forehead was born, and, with greater distension of the perineum, and still greater recession of the chin, the vertex descended just before the escape of the chin completed the delivery of the head. This mechanism I have also observed in one natural face presentation, and doubt not that it occurs frequently. I do not remember ever having seen any statement of this mechanism in works on midwifery, but am none the less positive as to the correctness of the observations in these cases.

The second case of the above character, presenting the root of the nose to the symphysis, I detected before the expulsion of the waters, and by supporting the forehead during the pains, while the vertex descended, succeeded in changing it into a first vertex presentation. This was a twin case, and, after the expulsion of the first child, the second was observed to present the vertex in the first position.

The fifth case of mal-position of the head was a face presentation, with the chin to the sacrum. Here, after ineffectual efforts to rotate the chin forward by the hand, the vectis was introduced, and thereby, the chin, as labour progressed, was brought anteriorly, so as to present under the arch of the pubis, and the sufferings of the patient brought to a speedy and happy termination.

It may be in place here to remark, that in the few cases of face presentations which I have seen, there has been scarcely more suffering than in ordinary labours; the duration has not exceeded that of vertex cases, and the child has in no instance been still-born.

The case above referred to, as retarding delivery by the disproportionately large size of child, occurred in December, 1844. This patient was rather small, though strong and healthy; she had passed well through three previous labours; in the present labour the child presented in the first position of the vertex. The head, notwithstanding good protrusive pains, progressed very slowly for several hours, and as the uterus, by protracted efforts became fatigued, the pains decreased in power, and even the administration of ergot did not excite sufficient contraction to cause important change; therefore, after having awaited the natural efforts, until it was feared that injury might result to the soft parts by allowing a more protracted pressure of the head, and the patient might become too far exhausted, we applied the forceps. These instruments were exceedingly difficult to adjust to the head presenting obliquely, at the inferior strait, and after ineffectual efforts to rotate the vertex to the arch, we succeeded in applying them sufficiently firmly by grasping the lock with the left hand, as to speedily deliver the patient of a large still-born male. No injury was produced either to the mother or child by the forceps, and the woman suffered no unpleasant consequences.

In the only case of prolapsed cord which I have seen, I could not succeed in any efforts to keep the cord permanently restored within the uterus; though its restoration in absence of pain was sufficiently easy, each uterine contraction caused its immediate expulsion; however, by frequently restoring it until the head occupying the upper strait presented, and by pressing the head as much as possible from the funis during the absence of pain, as well as by judiciously hastening the delivery of the chest after the exit of the head, we succeeded in terminating the labour favourably to the child.

In concluding the particulars of these cases, I may be permitted to reiterate, that in the whole number, the operation of *turning* was only *once* requisite; that the *forceps* were used *twice* successfully, when they seemed to be imperiously demanded, and on *three occasions* with benefit; that craniotomy was once performed necessarily; and, finally, that in no instance, excepting of course craniotomy, was artificial delivery or manual interference apparently productive of injury either to the mother or child.

Such are the most prominent facts which it seems useful to notice in reference to the individual cases; there are, however, other observations having a general reference to the whole, which cannot be properly omitted.

In proportion to my experience, I am more and more confirmed in the propriety of the *early delivery of the placenta*, and I find it advisable to introduce the hand, for this purpose, if no especial reason exists for delay, in preference to awaiting its uncertain expulsion by the natural pains. I would not await alarming symptoms to indicate the necessity of this measure, but rather anticipate them. When this course is pursued early and skillfully managed, less pain is caused, and considerably less discharge follows, than when the placenta is trusted to the efforts of the uterus already fatigued; and the uterus and general system are earlier at rest, and less exhausted. For similar reasons, too, when after full delivery, the discharge collects and coagulates in the uterus or vagina, and the former, when excited by graspings over the uterine region, does not *speedily* expel them, I introduce my fingers or hand in the vagina, or, if need be, into the uterus itself, break them up and remove them.

This operation it is *seldom* necessary to perform, for if proper attention be paid to procure immediate contraction of the womb, after removal of the placenta, the coagula will not ordinarily be formed, sufficiently to cause the evil alluded to;—the uterus, being once firmly contracted to proper size, will very rarely relax sufficiently to cause alarming symptoms. Sufficient exceptions, however, occur to warn us against *implicit reliance on this symptom.*

In case 353, after firm contraction the uterus relaxed, and I was obliged to resort to this operation before it could be reduced to its proper volume.

In case 293, this relaxation occurred the second time and was not finally overcome until the effect of tinct. of ergot was perceptible.

Of 413 children whose sex has been noted, 221 were males and 192 females.

No regular account has been preserved of their size or weight, but the largest weighed fifteen pounds within the 24 hours after birth, and the smallest healthy child which lived, weighed when six weeks old, only six pounds four ounces.

The following peculiarities of conformation, I have noted as worthy of record.

One female had the umbilicus three inches to the right of the median line.

One coloured male was deficient in the thumb, index, and middle fingers of each hand—and his brother in the same fingers, but had thumbs.

Another male was deficient in the ring and little finger of left hand.

A female had no left hand, but the end of a well formed carpal joint was terminated by five small nails.—Another had no thumbs.

The right eye of a boy was one-half smaller than the left—the vision seemed at first good in each eye, but gradually the sight of the smaller eye became impaired.

One male presented a most hideous appearance in consequence of hare lip. There was no roof to this child's mouth, and only a small portion of alveolar process of the upper jaw on each side. The septum nasi ran to the right angle of the mouth, and the left ala joined the left angle, thus leaving a large gap in which the tongue could be seen at all times. Sucking was here impracticable; every effort to take nourishment was attended with strangulation, and the infant died on the sixth day.

One male had spina bifida, and preternaturally small lower limbs, each foot presenting a varus internus. This infant, at first apparently in good health, soon suffered from convulsions, and died in about three weeks.

A male child, otherwise well formed and healthy, had imperforate anus. There was in this case no attempt to form an anus. This child did not appear to feel any inconvenience from deformity for about 48 hours after birth; it took a little nourishment, passed water freely, and seemed well, but about that time it became uneasy. Having decided on the necessity of attempting to relieve the bowel, it seemed best, as no exact spot had been marked by nature, to delay till either those urgent symptoms arose or the distention of the lower bowel designated the precise point to operate, and we accordingly waited. On the third day the child passed urine through the penis, and the urine presented a thick sediment, which remained on the diaper after the aqueous particles had evaporated. The child became more and more uneasy, and on the fourth day, finding that it would preclude all hope to defer longer, we endeavoured to form an anus, by incising in the ordinary place, and subsequently to penetrate to the gut, by pushing the bistoury and trocar into the ordinary situation of the rectum, but every effort failed. The infant continued to become more restless; rejected from its stomach the small quantity of milk which it took, and after the fifth day, till about the ninth, it could scarcely be induced to swallow anything. Then, however, wonderful to say, without any particular cause, he took the breast, and gradually the appetite returned; the vomiting became less frequent, the child looked better, and seemed to suffer less; this improved condition continued till the fourteenth day, when all the symptoms returned and gradually increased till the death of the little sufferer on the 21st day of extra uterine life. The whole amount of sedimentous matter passed through the urethra of this child, we estimated at less than two teaspoonsful.

On examining this body after death, we found great emaciation, particularly of extremities; the abdomen distended; its percussion over lower part dull; the skin covering abdomen of a light brown. On opening the body, the peritoneum both over the parietes and bowel was injected, and of a dark red. No adhesions had been formed, nor was there an inordinate amount of serum. There was no malformation observed in tracing the bowel from above down, till arriving at lower part of colon. This bowel here terminated in a small appendage, resembling the appendicula vermiformes, which communicated with the cavity of the colon, ran below the neck of bladder, and emptied into the urethra at side of the caput gallinaginis.

The bowels were distended with a very thick substance, resembling, as we might suppose, a mixture of meconium and fecal matter.

There was no extraneous matter in the bladder.

All the parents of these children were well formed, and excepting in one instance, no near relationship existed between them.

West Philadelphia, 1847.

Art. IX.—*Extirpation of a peculiar form of Uterine Tumour, simulating Ovarian Disease, by the large Peritoneal Section, followed by an unsuccessful result.* By Samuel Parkman, M. D., one of the Surgeons of the Massachusetts General Hospital, Boston.

Miss S——, a single woman aged twenty-seven years, entered the Massachusetts General Hospital, Dec. 18th, 1847, with a tumour of the abdomen, and gave the following account of its growth. One year previously, she first observed a fullness of the abdomen, her attention being attracted by her clothes being too small at the waist, and she then detected a tumour which she is rather inclined to think, was towards the left side, though she is not definite upon the point. This tumour has continued to increase slowly at first, but more rapidly within the past six months, until it has attained its present size. Her general health has been unaffected. She has continued her occupation, that of an operative in a factory, until within a few weeks of the present time, and has relinquished it only because she has resolved upon the removal of the tumour.

The presence of the tumour has exercised no influence upon the alimentary canal, the functions of which are performed with perfect regularity. The menstruation is regular and unattended with pain or other abnormal symptoms. The only inconvenience she suffers, is from the weight of the tumour. In person, Miss S—— is short and spare, complexion brunette, flesh firm, in fact showing all the indications of a good constitution. She is evidently a person of character and intelligence, and her remarks indicate, that she has well weighed her condition, and has made up her mind, after due reflection, to the result of her disease whatever it may be.

Examination of the Tumour.—The patient being in bed, the uncovered abdomen appears enlarged, as in a woman at about the seventh month of utero-gestation—at about an inch below the umbilicus, there is a scar, with the scab still adherent—the result of the introduction of a trocar by Dr. Crosby of Manchester, N. H., from which no fluid followed. Percussion of the abdomen gives a resonant sound in the right lumbar, the right hypochondriac and epigastric regions—in the left hypochondriac and lumbar regions, there is resonance if the body be inclined to the opposite side; when lying on the back this resonance disappears. In all other parts of the abdomen there is perfect and complete dullness. The tumour then occupies the hypogastric right and left iliac, umbilical and left lumbar regions, and encroaches upon the left hypochondriac and epigastric. The tumour is perfectly well defined, its edges rounded, and appears as if composed of three pretty distinct lobes, the largest forming the chief of the mass occupying the centre of the cavity and reaching to the epigastrium; towards the right lumbar, a smaller one, and in the left iliac region one smaller still. The whole is readily grasped and moved in the abdomen—there is no distinct fluctuation, but it gives the sensation to the hand of being composed chiefly of an elastic texture containing cysts scattered throughout its substance.

Examined per vaginam, the os uteri is readily felt, soft and yielding, situated just behind the os pubis—and posteriorly to this there is felt a rounded tumour about the size of an egg—which same tumour is felt by an examination per rectum, and is concluded to be the body of the uterus, retroverted by the great tumour.

In making up the diagnosis upon the nature of this tumour, it appeared to my mind, that the decision lay between two classes of abnormal growths, viz., a tumour of the uterus, or of the ovary. That it was not a common fibrous tumour appeared almost certain, from its rapid growth, the peculiar sensation it gave to the hand, and the absence of menorrhagia, so common an attendant upon these. That it was an ovarian tumour, appeared indicated by its rapid growth, the peculiar elastic sensation and its history. All these circumstances pointed towards ovarian disease—they did not make the diagnosis certain, however. The only perfectly conclusive symptom, the evidence of the presence of fluid, to prove this to be an ovarian dropsy, was wanting; its absence, however, was explained, on the supposition that the mass of the tumour was an elastic solid containing small cysts. The diagnosis may then be thus stated, all the evidence that we have, points towards ovarian disease. There is, however, only sufficient evidence to render it extremely probable, but not certain, that such is the disease. I concluded also from its mobility, and the absence of pain, that the pedicle was small, and the surface of the tumour free from adhesions.

With these ideas, I called a consultation of the other Surgeons of the Hospital, Drs. J. C. Warren, Hayward, Townsend, J. M. Warren, and H. J. Bigelow, with a view of confirming or pointing out the errors of my diagnosis, and to request their opinions upon the propriety of an operation, for it was upon this that the patient's mind was bent. After a minute and accurate examination of the tumour, their opinions coincided with mine. The evidence appeared to tend decidedly to the conclusion to which I had arrived, the great probability, but not certainty of the disease being ovarian. With reference to an operation it was agreed that it should be attempted, provided a full statement of its ultimate dangers and chances of success having been made to the patient, she should freely and fairly, without bias from any one, so elect.

The consultation being finished, I again visited my patient and proceeded to make to her the statement of her case. I told her that the operation had been done a few more than one hundred times, and that she must consider her chance as not more than one out of two. Before I could finish, however, she cut me short by saying, "I have been told all this before: are you willing to undertake the operation—it is my determination, and I take the chances of the result." I again asked her if she was certain that she understood all the dangers to which she was about to subject herself. I told her that death, if it did come, and I again insisted upon the chances, after the operation would probably follow with but a short interval. Her answer was still the same, and under these circumstances I conceived that the patient herself imposed upon me a responsibility which I could not decline.

And here I may pause a few moments, to answer a question which will naturally suggest itself to the reader, whether this operation was undertaken, with the belief that this individual patient had in submitting to it only one chance in two for her life? To this I can reply, and I think fairly, that there was reason to believe, that her chances were considerably more than those above stated. It appears from Mr. Lee's paper, as quoted in South's translation of Chelius' Surgery, that in all the cases thus far recorded of opening the abdominal cavity for the extirpation of tumours, that there has been *one* death to nearly *three* patients operated upon. But it was thought in this case that many of the conditions which have swelled the list of fatal results were absent.

Thus there was reason to believe, that there were no adhesions, a very important circumstance, and that the pedicle was small, the patient was in good health, and of a good constitution, and finally I believed the tumour to be in all probability ovarian. I thought then that this patient's chance, from all these favourable circumstances, was much better than the average, and having exaggerated to her the dangers, I felt myself encouraged to its performance.

With these views, then, the operation was resolved upon, and Saturday, Jan. 8, 1818, fixed upon it for its performance. On Friday the patient was ordered a mild laxative of Castor oil, to be followed by a warm water enema at night, and another the next morning. She was directed to take nothing but gruel for diet, with the view of having the alimentary canal as empty as possible.

On Saturday I found the patient perfectly calm and cheerful, and having arranged her dress so as to prevent any unnecessary exposure, and directed the administration of forty drops of laudanum at 10½ o'clock, for the purpose of quieting any intestinal movement, I left her, to meet at eleven in the operating theatre.

On going into the consulting room of the hospital, I met, with great pleasure, Dr. Crosby, of Manchester, N. H., who with several other gentlemen had come to Boston to witness the operation. Dr. Crosby, it will be remembered, was the surgeon who had introduced the trocar into the tumour.

In conversing with him on this point, he stated that he did not consider his operation as by any means conclusive against the existence of fluid in the tumour; in fact he was still strongly inclined, from the peculiar sensation imparted to the hand, to consider that there was fluid contained in cysts more or less in number and size. I then stated that if after opening the abdominal cavity, I should find the existence of any large cysts, I could easily discharge their contents, which would much facilitate the attainment of the pedicle of the tumour.

Being thus prepared for all emergencies, at 11 A. M., in company with my colleagues the other hospital surgeons, I repaired to the operating theatre, the temperature of which had been raised to 75°, where were already assembled the medical class of the university, and a number of physicians of the city and vicinity, who had expressed a desire to witness an operation so unusual and important. A few remarks having been made upon the nature of the case, the dangers of the operation, and the circumstances under which it was undertaken, the patient was introduced, and by her cool and determined bearing, attracted the admiration of all assembled.

Being placed upon the operating table, she proceeded to inhale the new anæsthetic agent, chloroform, which was administered by Dr. Bigelow. As soon as the influence of this was completely established, requiring but a few moments, I placed myself upon the right side of the abdomen, which was then uncovered. Dr. J. Mason Warren, who was to be my chief assistant, and who kindly charged himself with the management of the intestines, standing opposite me.

Commencing then the operation, a free incision was made through the skin and cellular tissue in the median line of the abdomen, from midway between the ensiform cartilage and umbilicus, passing to the left of the latter, to the pubes. The cavity of the abdomen was then opened by a small incision below the umbilicus through the linea alba, which was immediately followed by a gush of straw-coloured serum from the peritoneal cavity. Introducing the fore-finger of my left hand into this opening, I quickly passed upon it a probe-pointed bistoury, and slit the abdominal walls up and down in the whole length of the external incision. The tumour was thus completely uncovered, exhibiting its surface with the same divisions previously noticeable to the touch. The scar left by the trochar was distinctly visible. Examining the tumour with the hand, the sensation of a fluid was so distinct and well marked, that seizing a trocar and canula, I plunged them into the mass to the depth of two inches; withdrawing the trocar, no fluid followed. So convinced of its existence was I, however, that I immediately repeated the puncture at another spot—with the same result, however. Without any further delay, then, I turned the tumour from its bed. The mistake, as regards its nature, that had been made was at once evident, it was uterine.

Its origin, however, was not by a small neck, as in the more common form of uterine tumour, but the organ appeared to expand itself and grow gradually into the enormous mass. Passing my hand into the cavity of the pelvis, I selected a spot which seemed adapted to be girt by a ligature. Through this I passed a large needle, armed with a double thread, composed of eight strands of well waxed saddler's silk, twisted strongly together. Cutting out the needle, I proceeded to tie the two ligatures in opposite directions: so firm and solid, however, was the tissue to be surrounded, that the first ligature broke. I tied the other, which held firm, and then encircled the opposite half of the pedicle with the ends, which I also firmly tied. Another needle similarly armed was then passed in the same situation as the first, and being cut out, each half of the ligature was tied with all the strength of which I was master. I felt and heard the uterine tissue break down under its application, and considering this as satisfactory, with the probe-pointed bistoury I cut off the tumour. A small quantity of black blood followed the incision, evidently only from the part removed.

Examining immediately what we may call the stump, I saw a surface, of about two inches square, perfectly white and bloodless, presenting in its centre an orifice evidently the uterine cavity, and surrounding this, the open mouths of innumerable vessels, the size of the calibre of a pipe stem, not one of them shedding a drop of blood. I considered all danger of hemorrhage as at an end. The abdomen was carefully spunged of the very small quantity of blood that had been lost, not more than a few ounces. The intestines, which of course had escaped, being however perfectly contracted and empty, were returned, the omentum arranged over them, the ligature brought out over the pubes, and the abdominal walls brought together by sutures placed about three quarters of an inch apart. Strips of adhesive plaster were then applied, and over these compresses and a binder.

During the whole operation, the patient gave no sign of suffering, save a very slight motion of the lower extremities when the first incision was made. The pulse continued good throughout. The operation, exclusive of the dressing of the wound, occupied, as I am informed, just twelve minutes, some little time being expended in deciding upon the position of the ligature. This is mentioned as a fact, and not as indicating that celerity was one of the objects aimed at.

The operation thus terminated, the patient, still partially under the influence of chloroform, was conveyed to her bed. In about half an hour she was perfectly restored, and said she had been completely unconscious of the operation. Warm water was applied to the feet, and laudanum directed if pain came on, and a small quantity of hot brandy and water administered.

During the afternoon she continued to rally; the pulse came up well, and at 4½ P. M. she was warm, and in fact desired the removal of some of the clothes. The house surgeon made her frequent visits, and at 7½, when I called again, reported having seen her about half an hour previously, and that she was then doing well. On visiting her, however, it was evident that a change had in the mean time taken place. She had just vomited; the skin was cool, and the pulse barely perceptible; there was no complaint of pain except from the act of vomiting. Examining the dressings there was no sign of bleeding.

Stimulants of course were immediately ordered. Brandy and laudanum, brandy enemata, carbonate of ammonia, and sinapisms to the inside of thighs. She did not rally, however; at 9 o'clock I found her worse, and after remaining some time, I took my leave of my noble-hearted patient, who appeared fully conscious of her situation, and at eleven she died, all the means that I directed having been fully carried out by my intelligent house surgeon, Dr. Andrews.

The next morning I examined the abdomen. The dressings of the wound were perfectly dry; on cutting the sutures, however, a cause of the death was evident. The cavity contained rather less than a quart of firmly coagulated blood; its origin was from the vessels of the cut surface of the uterus, which was covered by adherent clots.

Description of the tumour.—The weight of the tumour, a considerable quantity of its blood having escaped, was eight pounds and thirteen ounces. It measured about nine inches on an average in its different diameters, and in its form presented the same appearances as felt by the hand through the abdominal walls, viz., the triple lobes. On the anterior surface near the neck was hanging the left Fallopian tube. On examining it with the hand, the sense of fluctuation was so well marked, that it was almost impossible to undeceive one's self of the existence of fluid in cyst, even after many incisions were made into it. These incisions were made in different directions and situations, according as the different by-standers pointed out, each one as he selected his spot, supposing that his diagnosis was certain to prove correct. One straight incision from apex to base made the nature of the tumour perfectly evident. It was seen to be a fibrous tumour developed in the substance of the uterine fundus. A thin layer of uterine tissue enveloped the whole, showing upon the cut surface the open mouths of vessels enlarged as in the pregnant organ. The whole morbid growth had been removed, as shown by the surface where the amputation was made presenting only uterine tissue.

The morbid growth varied very considerably from the usual appearances of the fibrous tumour or fleshy tubercle; it had none of the hard, grisly character, but was soft and compressible like a sponge, presenting large meshes, containing a very considerable quantity of clear serous fluid, which leaked from the incised surfaces.

These appearances, the soft texture, and the fluid abundantly explained the deceptive character of the sensations given to the touch. In the centre of the mass there was a considerable quantity of effused lymph, and a commencement of the disorganization common to these tumours, and which usually destroys life.

The post-mortem examination of the parts left in the pelvis, showed that the tumour originated not at the extreme fundus of the uterus, but rather towards the left side, involving that part into which the Fallopian tube is inserted, which tube it may be remembered was observed upon the removed tumour. The line of the incision separating the tumour from the uterus, passed through the cavity of the organ, cutting off just its upper extremity. The ligature on the right half of the pedicle had done its work effectually. On the left, however, the constriction was less complete. It was evident, however, that the ligature had been drawn and tied tightly, as the uterine tissue had been broken down in its track, but this ligature necessarily involved the Fallopian tube, and a portion of the broad ligament, and these, perhaps, accommodating themselves to the pressure, had caused a relaxation of that upon the uterine tissue. Both ovaries had been left in the pelvis.

Boston, Feb. 1848.

ART. X.—*Case of Cancer of the Stomach.* By ISAAC G. PORTER, M. D., of New London, Conn.

THE following case of organic disease is interesting, chiefly for its bearings on diagnosis. The rapidity of its course, after the appearance of alarming symptoms, and the comparative absence of certain pathological phenomena, which are ordinarily prominent in such cases, while they did not conceal its organic nature, or its specific name, were yet sufficient to cause strong doubts on the subject, in the minds of many. An outline of the autopsy having been requested by the sons of the deceased, a copy of it is forwarded for publication, with an account of the symptoms as they existed, under the belief that, though an isolated observation, and though tending rather to obscure, than elucidate diagnosis, it may at least lead to a guarded prognosis in similar cases.

The case occurred in the person of a gentleman, sixty-six years of age, of much energy of character, and of successful enterprise. His health may be said to have been robust, until within two months of his death, though for twelve or fifteen years he had been affected with what he supposed to be a mild form of dyspepsia, and which he traced to a severe burn, received when a youth, on the parietes of the stomach and abdomen. Its usual form was regurgitation of food, yet free from acidity. There were also, at a later stage, eructations of large quantities of air, which was often fetid. Slight uneasiness after a full meal also existed, with a constant sense of weight or oppression, yet never amounting to actual pain. Two months before his death, he applied to Dr. N. S. Perkins of this city, his usual medical attendant, (and in connection with whom, the writer saw the patient,) on account of slight constipation, and somewhat increased dyspeptic affections. The former soon yielded to mild remedial means, but the latter gradually increased, until he found that solid food caused considerable distress, but ordinarily not until it had been six hours in the stomach.

Dec. 19*th*, 1847, he vomited matters for the first time, resembling coffee-grounds, and the passages from the bowels were of similar appearance and colour. Still his physical strength so far remained, that although somewhat emaciated, from the influence of low diet, and the want of solid food, he was able to be in his counting-house, Jan. 3, 1848, nineteen days before his death.

From this time, he declined rapidly. January 14, he threw off from the stomach a large quantity of uncoagulated blood, mixed with coffee-grounds, and from that time, this symptom was often repeated until faintness at times was induced. The relief previously gained from vomiting had been conspicuous; matters occasionally were thrown off, which he recognized as having been received into the stomach, some days previously, and at such times, he would feel that the mystery was solved, and that the cause of the disease had been reached.

The pain, mean time, was so trifling, as scarcely to deserve the name. As he approached the close of life, an indefinable distress existed in the region of the stomach, which he described as a sense of sinking, and emptiness, rather than actual pain—and more the faintness which comes from want of food than the sensation of hunger. Pressure over the epigastric region produced scarcely any uneasiness, and there was *none* of the lancinating pain so generally believed to accompany cancer. A small tumour, it was thought, could be detected by external examination near the seat of the pylorus, or rather of the duodenum. It *may* have been the latter, as the post-mortem examination revealed this intestine filled with hard fecal masses, though the existence of this circumstance ought probably to be referred to inverted action of the intestinal canal induced in the last stages, by the almost constant regurgitation or vomiting which existed. He died January 22d, 1848, in the full possession of his mental faculties, with the calmness of the philosopher, and the moral grandeur of the Christian.

Autopsy, thirty-six hours after death.—Body considerably emaciated, though in making the abdominal section, fat one-third of an inch in thickness was found. The countenance did not possess the "dingy, sallow, exsanguinous, yet opaque appearance, so common in cancerous diseases." The peritoneum was much thickened in the neighbourhood of the stomach, and the latter had contracted numerous adhesions to surrounding organs. It was found contracted; but the nature of the disease was apparent before it was opened—a scirrhous tumour, the size of half a small orange, being evident on manual examination. The disease was concentrated at the pylorus, though the adjoining portions of the stomach were somewhat hypertrophied. The pylorus constituted a scirrhous stricture, it being occupied by a carcinomatous deposit of the encephaloid species, half an inch in thickness, and which latterly must have prevented all downward egress from the stomach. Superficial ulceration had occurred in some places, but it was mainly hard, like cartilage, and in its colour and appearance brain-like. The duodenum was filled with hard, fecal masses, about the size of hickory-nuts. The under surface of the liver presented a carcinomatous deposit, the size of a grape-shot.

The treatment in the foregoing case was mainly palliative, the medical attendant early discovering the injury resulting from active measures. Gentle alkaline aperients, and lime water and soda were evidently serviceable in quieting the stomach. Narcotics were scarcely once used, so little indication existed for anodynes.

The points of practical interest are:

1st. The rapidity of its course (but little more than a month), after the appearance of grave symptoms.

2d. The absence of the peculiar countenance belonging to the cancerous cachexia, and the length of time (six hours) which elapsed, after solid food was taken, before it produced decided uneasiness.

3d. The absence of positive pain, even in the last stages, especially of the lancinating kind, peculiarly characteristic of cancer. The last days and hours of life were, to a considerable extent, passed in quiet tranquil sleep.

ART. XI.—*Case of Melanosis.* Communicated by J. B. S. JACKSON, M. D., of Boston.

MRS. P., a patient of Dr. S. Spofford, of Newburyport, entered the Eye Infirmary, in this city, Nov. 8th, 1844. Eight years before, she began to have pain in the right eye, followed by loss of vision, the pain continuing, and being so severe as to require the use of opiates. Three years before, the lens became opaque, and for the last six months there had been a protrusion of the eye from the cavity of the orbit. On examination, a tumour was felt just within the orbit on the temporal side; the eye was greatly protruded, the lids discoloured, and the iris pushed forwards by the opaque lens. On the 12th, the eye was removed by Dr. R. W. Hooper; with it the whole of the diseased mass; and on the 23d, the patient returned into the country.

On examination of the diseased mass, which has been preserved in the Cabinet of the Society for Medical Improvement, there was found to be a well-marked melanotic tumour, equal to more than an inch in diameter, and closely connected with the sclerotic coat; being mostly external, though a large portion of it was situated within the cavity of the vitreous humour. One or two small and distinct masses were also seen, apparently just commencing in the sclerotic coat. The eye itself was not enlarged.

On the 15th of December, 1845, the patient again showed herself, with a return of the disease; about a fortnight after she left the Infirmary, as she stated, there appeared a small purplish spot about where the external incision terminated, when the eye was removed, and just in the cicatrix. In August the disease re-appeared in the orbit, and on the above date the cavity was filled with masses varying in size from a pin's head to a chestnut, the surrounding integuments being also affected; at first there was severe pain with swelling in the chest, but these symptoms had subsided, and her general health was decidedly better than before the operation.

From the above date, until her death, which occurred on the 9th of Jan. last, and at the age of fifty-one years, the tumour in the orbit gradually enlarged, and the patient, for much of the time, suffered very severe pain extending from the eye to the occiput; the paroxysms being occasionally attended with bilious vomiting, and sometimes with hemorrhage. With these exceptions, her general health was good, and her appetite remarkably good until last June, when she was attacked with dysentery, from which time she suffered from pain in the back and hypochondria; this was at times excruciating; it was accompanied with hardness and some swelling of the abdomen which continued until her death; the pain in the orbit meanwhile had subsided. About two years ago, the disease began to appear in the integuments, and tumours were successively developed in different parts of the body, but were never painful. Catamenia regular until the attacks of dysentery. No hereditary tendency to cancer, but when quite young, the patient had a small tumour removed from the lip which her physician thought might have become cancerous if allowed to remain, and the latter part of the history of this case has been furnished by Dr. H. C. Perkins, of Newburyport, after having been revised by Dr. Spofford.

On examination after death, the cavity of the orbit was found to be filled, though not distended, by a well characterized, almost perfectly black, melanotic mass; the external tumour was about half the size of the fist, deeply lobulated, partially covered by their integuments, and having there a purple colour, as it was black where exposed; no proper ulceration, and no appearance of gangrene. The bones were healthy, excepting the large wing of the sphenoid, which was partially absorbed, the disease just beginning to show itself within the cranial cavity; antrum healthy; optic nerve on right side atrophied. Brain quite firm, but otherwise not remarkable.

The surface of the body, anteriorly, was studded over with melanotic tumours, as in a case figured by Cruveilhier, some being seen upon the neck and a few upon the extremities; about the mamma, where they were most developed, several of them were of the size of a nutmeg, and considerably discoloured externally. On dissection, the masses were found to be quite defined, of a rounded form, and varying from a pale brown to a deep soot-colour, a few of them being evidently stained by effused blood; they were mostly just beneath, but attached to the skin, some being found in the cellular membrane, and not a few in the muscles. In the right iliacus internus muscle, there was a large mass, of a reddish colour, and perfectly grumous. Right mammary gland apparently healthy.

Within the cavities of the thorax and abdomen there was found a great amount of disease, situated for the most part in the cellular membrane and external to the organs. One quite large mass rose from the upper surface of the diaphragm, and from the anterior edge of the lungs there hung off numerous others of a regular rounded or ovoid form, singly or in groups, and on an average, of the size of an English walnut. The surface of these organs was also studded over with much smaller masses, and a few were found in their substance; at the apex of one of the lungs was a fine specimen of arrested tubercular deposit, but without any appearance of recent deposit.

The omentum consisted of a delicate web, filled with minute but distinct melanotic deposit, except about its lower edge, where was a pale brownish mass about the size of a hen's egg, and another about half as large, and quite black. Several pedunculated masses arose from the mesentery, and particularly about its junction with the small intestine, varying from the size of a walnut to that of a hen's egg; the fundus of the uterus and the ovaries were also studded over with the same.

In the substance of the left ventricle of the heart, there were found traces of disease, besides numerous small masses, just beneath the pericardium, and internally just beneath the lining membrane of the two ventricles, and the right auricle; these last deposits being quite black, and about the size of peas. The liver contained one or two masses, from two to three inches in diameter, besides some smaller ones, all of them being of an intensely shining black colour, and without a shade of brown; otherwise the organ was quite healthy. In the substance of the pancreas was a perfectly defined round mass, of a rich brown colour, and of the size of a marble; besides several others, quite small and pale, there was also an abundant deposit external to the organ, as there was about the right kidney, this last being, itself, not much diseased. The left kidney was distended into a thin fluctuating cyst, though only moderately enlarged; the pelvis, externally to the organ, was, however, much enlarged, and the ureter was dilated in proportion throughout the greater part of its extent, being completely plugged up towards its lower extremity by a melanotic mass more than an inch and a half in length, and perfectly black. Bladder healthy, as were the genital organs in substance, the alimentary canal, and the spleen.

The colour of the masses above described varied as did those in the integuments, being generally of a pale brown, sometimes of a deep rich brown, and in a few cases of a coal black; several of them were also stained by effused blood, though no distinct coagula were found, and there was nowhere any appearance of encephaloid deposit. They were always perfectly defined, though never encysted, the surrounding structures being in no way affected. In consistence they also varied, being sometimes almost of a grumous softness, and sometimes moderately firm. In most respects they corresponded remarkably with Cruveilhier's figures; the divisions by septa and the lobulated form were, in some of the masses, quite distinct, though in others not at all; the bones, however, were nowhere the seat of the deposit, as in one of the figures referred to.

The lymphatic glands were generally but little affected, except in the right axilla. Specimens from different parts of the body have been preserved for the medical society's cabinet, and a few were sent to New York, and there exhibited before one of the medical schools.

One of the black, and one of the light brown tumours having been sent to Dr. John Bacon, Jr., of this city, for microscopical and chemical examination, the following is his result.

"Sections of brown tumour (which is less opaque than the black), appear under the microscope, both by reflected and by transmitted light, to be composed of coarse grains, with some indistinct fibres intermixed, a few roundish groups of regular black granules, apparently enclosed in cells, are scattered throughout the mass; but its colour is seen to be due to a brown colouring matter irregularly diffused.

"When the sections are subjected to pressure between the glasses of the Compressorium, a small quantity of a colourless viscid fluid is forced out, accompanied by vast numbers of transparent oil-globules of every size, which readily unite with each other, when brought in contact by pressure. Small pieces of the tumour broken up, (or portions scraped from a fresh-cut surface,) and diffused in water, exhibit, in addition to the oil-globules, and a few black granules, immense numbers of semi-transparent cells of various forms and sizes, not distinguishable from true cancer cells. They are well seen in a portion of the tumour, from which the fat had been entirely removed by boiling in successive portions of ether. Many of the cells contain distinct nuclei and nucleoli; in some there are several nuclei. Among the forms observed, are caudate, fusiform, oval and nearly round cells. Sometimes the wall of the cell is distinctly visible and very thick. In the less broken masses, the cells can be traced from the edges into their substance, producing the granular structure already mentioned.

"Sections of the black tumour, when compressed under the microscope, afford the oil-globules mixed with a viscid fluid, like the brown tumour. Great numbers of small irregular granules, perfectly black, are also observed. These granules are either isolated, or in groups contained in cells. Whether they were all enclosed in cells in the tumour, cannot be determined. On comparison with pigment-granules from the eye of an ox, they are perfectly similar in appearance, and in their chemical reactions, as described by Vogel. The cancer cells are present in the black tumour, but are not so distinctly seen as in the other. A few fibres are also observed.

"The black tumour retains its colour unchanged after boiling in ether; the other is nearly deprived of its colour, which is not due to pigment granules, though these are present in small amount, but to a brown colouring matter which appears to be soluble in ether.

"Whether the fat is contained in cells, could not be determined, but such is probably the case. No globules are visible until compression is applied.

"The facts which have been stated, lead to the conclusion, that these are true encephaloid tumours, consisting of cells, &c., viscid fluid with a few fibres. There are also present pigment cells, and pigment granules, and a large amount of fat."

MONOGRAPH.

Art. XII.—*A Statistical Inquiry into the Causes, Symptoms, Pathology, and Treatment of Rupture of the Uterus.* By James D. Trask, A. M., M. D., Brooklyn, New York. Read before the Brooklyn Medical Association, Oct. 14, 1847.

In the preceding number of this Journal, we presented a summary of three hundred and three cases of rupture of the uterus; and we propose now to show the deductions which may be drawn from these cases, in regard to the symptoms of this accident, its causes, pathology and management.

V.—*Rupture during Pregnancy.*—Rupture of the womb during gestation, is, as we infer from our cases, comparatively rare. There are, however, unquestionably numerous instances of sudden death during pregnancy which are due to this, in which the cause is not known, and not even suspected. This arises mainly from the difficulty of distinguishing this accident, from rupture of any of the other abdominal viscera, as the spleen, liver, stomach, and bladder, when the symptoms follow mechanical injury; and from colic, peritonitis, &c., when they occur spontaneously. Thus we see that in Case XXV., it was considered to be colic, and in Case XXVIII., the patient exhibited "symptoms of loss of blood, or of lead poisoning." In Case II., the usual alarming symptoms of rupture were absent. In several cases it is evident that the rupture was unsuspected, until revealed by an autopsy.

The diagnosis of the accident during pregnancy, is more difficult than during parturition; for, in the latter case, we often have the recession of the head as a diagnostic sign; the limbs of the fœtus may often be felt in the abdomen; and the other concurrent symptoms are not usually so well marked in the former as in the latter case. From an examination of our cases, it appears that, in making a diagnosis, we may derive aid from the previous history, and the circumstances immediately preceding the alarming symptoms. Thus in Case II., the patient suffered a severe blow upon the abdomen, and felt a severe tearing pain. In Case III., several weeks before medical aid was demanded, she felt a strange sensation in the abdomen, &c., after violent pumping. In Cases IV. and V., the Cæsarean section had been previously performed. Case VI. had suffered a fall several months before, followed by severe constitutional symptoms. In Case XVIII., there was habitual dysmenorrhœa, and the symptoms followed an excursion. In Case XVII., the accident immediately followed violent injury. In Case XX., the symptoms immediately succeeded a sudden fright; and in Case XXX., a fit of passion, succeeded by violent exertion. In Case XXII., it occurred while waltzing, after dining, and taking a cold bath. In Case XXIV., it followed severe fatigue, and in Case XXV., a sudden and severe pain was felt after a long walk. In Case XXVI., rupture occurred while leaning over a flour-barrel. In the remaining instances, the rupture was not preceded by any unusual occurrences during pregnancy, and followed no physical injury, and is therefore to be regarded as having been spontaneous.

Rupture, then, may depend on traumatic and idiopathic causes. In Case XXX., it followed intense emotion and violent exertion. In Cases XX., XXX. and LIV., it followed intense emotion. Mental emotion is a cause of rupture not ordinarily recognized; and yet it would appear that cause and effect could be as distinctly traced in these as in any other cases.

If we now inquire into the symptoms attending, and preceding the rupture, we shall find that, in a large number of cases, violent pains come on, followed by sudden vomiting, faintness, and tenderness, each, or all, and sometimes hemorrhage from the vagina; as in Cases I., III., VII., in which the pains were very violent, and in many of the other cases detailed. In Case XIII., the patient was awakened in the morning by the pains. In Case V., a cracking sound was heard when the abdominal parietes gave way. In Case XXII., the cracking was felt at the time of rupture, and in Case XXV., a tearing sensation. In Cases XXVI. and XXXIII., the patients were conscious of something giving way within them. In Case XXI., after repeated profuse hemorrhages, the limbs could be felt through the abdominal parietes; and in Case III., after an attack of vaginal hemorrhage. In Case XXXI., coagula were discharged *per vaginam*, two hours after pain and bilious vomiting.

In those cases, in which rupture followed a mechanical injury, the patients were conscious of a strange sensation, which was followed by a greater or less degree of prostration, except in Case VI., in which the fall was succeeded by severe constitutional symptoms. In Case II., however, notwithstanding the fœtus escaped into the abdomen, the usual symptoms of rupture were absent; this is the only instance among this class of our cases, in which this fact is stated. In those instances in which no mention is made of symptoms following the accident, the omission is probably due to the neglect to record them.

It is evident that the diagnosis of this accident during the early months of pregnancy, must be often very difficult, and in some cases impossible. Whenever symptoms of collapse have followed a severe mechanical injury, and are accompanied by pains more or less severe in the region of the uterus, especially if accompanied at once, or within a short time, by any degree of hemorrhage from the vagina, we have strong grounds for believing that this accident has taken place. Even with all these symptoms, there might be danger of mistaking it for rupture of the bladder. If, however, the fœtus can be felt in the abdominal cavity, we may consider our diagnosis well established.

The diagnosis of spontaneous rupture is liable to the same difficulties. When symptoms of collapse follow a sudden exclamation on the part of the patient, that something has burst within her, and are accompanied by pains in the uterine region, and hemorrhage from the vagina, we may reasonably suppose that the uterus has ruptured, and we should act accordingly; but when the symptoms are gradual in their accession, of moderate intensity, and indistinct in their indications, we shall be compelled to trust our patient to the resources of nature alone. It is only when the pregnancy is considerably advanced, that we could expect to be able to distinguish the limbs of the fœtus through the parietes of the abdomen; when these can be distinctly made out, in connection with the other symptoms, the diagnosis can scarcely be difficult.

VI. *Causes of Rupture.*—The causes of rupture are predisposing and immediate.

1. Among the former, contraction of the pelvis has been considered by most authors as standing pre-eminent, especially when rupture occurs at the neck. F. Ramsbotham has never known a case, in which there was not some contraction. In the *Edin. Med. and Surg. Journ.*, 1843, p. 49, Mr. Roberton has presented thirty-six cases of rupture, collected from various sources, in which there was diminution of the diameters of the pelvis. We find among the cases we have collected, a large number in which it is stated that such contraction existed to a greater or less degree.

There appears to be among authors three different modes of accounting for the influence of a contracted pelvis in producing rupture.

The first is, that, as a consequence of long continued pressure of the neck of the uterus, between the head and the pelvic bones, during a protracted labour, "inflammation ensues; and, if the cause be not soon removed, gangrene will follow."—*Dewees.* Denman maintained that, "independently of disease, the uterus may be worn through mechanically in long and severe labours, by pressure and attrition between the head of the child and the projecting bones of a distorted pelvis; especially if they be drawn into points, or a sharp edge." Were Denman's theory true, as Dr. Dewees significantly remarks, the head of the fœtus would exhibit marks of the attrition.

A second idea is, that, since during the latter part of gestation, the neck of the womb rests upon the brim of the pelvis, if the promontory of the sacrum be too prominent, or the pubes sharp, it is reasonable to suppose that the uterine structure may be affected—that inflammation may occur from pressure—and that a thinning or softening of the substance of the womb may be induced.—*Ramsbotham.* A third does not recognize any morbid condition of the uterine substance, but accounts for the influence of a disproportion between the fœtal head and the pelvis, by the fact, that a portion of the cervix uteri is pinched between the head and the pelvis, and fixed so that the action of the uterus is directed against this spot rather than the os uteri.—*Burns.*

The probability is, that each of these causes explains the occurrence of rupture in some cases, but that neither is of general application. An objection that strikes us in reference to the first cause, is, that the injury of the soft parts, from long-continued pressure, could not take place without great constitutional disturbance, such as would probably induce a prudent practitioner to resort to energetic remedial means, or to artificial delivery; and yet we know that in the practice of such, rupture has not unfrequently occurred. Farther than this, many cases of labour, in which rupture has occurred, have been of insufficient duration for such grave lesions to be produced.

If we take the cases of contracted pelvis in which rupture took place at or near the cervix, we shall find, in case CLXIX., the duration of labour was only *four* hours, and the pains were feeble. In case CLXXVII., it lasted *five* hours. In CCXCIV., *six or seven hours*, and feeble pains; in CCXX., *ten hours;* in XCIV. and CLXVI., *twelve* hours; in CXXVI., about *twelve* hours; in CCXVI., *thirteen* hours; in CLIII., *nineteen* hours; in CLXXXIX., *twenty-four* hours; in CXC., *twenty-seven* hours; in CLXXV., *thirty* hours; in XCIII., *forty* hours; in CC., *forty-eight* hours; in CLI., *sixty* hours; CCXXI., *several* hours. In CCLXIII., it lasted from Saturday till Monday noon; in CCXCIV., not over six or seven hours.

In several of these cases, the rupture could not have depended upon any morbid condition induced by the severity of the labour; while in a few, the duration was undoubtedly sufficient to permit such lesions to occur.

The second explanation is applicable to certain cases. Thus, in Case CCXXI., there was a dark brown ragged opening, chiefly in the posterior part of the vagina and cervix; and also a transverse rent at the junction of the vagina and cervix, after a labour of several hours. In Case CXXVI., labour lasted but about twelve hours, and yet there was a circular opening opposite the promontory of the sacrum, and "from the rupture a circular patch extended a short way into the body of the uterus, much thinner than the remainder." In Case CXXVIII., rupture took place before the os was fully dilated, the labour evidently not very protracted. The cervix was altered in structure, but the fundus was likewise involved in the disease. In the first of these two instances, the lesion might, and perhaps did, depend upon long-continued pressure of the gravid uterus upon the promontory of the sacrum; but, in the latter case, there was a diseased condition of the organ, which could depend on no such local cause. It is easy to conceive that continued pressure for a considerable time should produce atrophy of the portion compressed, and absorption of more or less of its substance. The same should be true when the disproportion is from excessive development of the fœtal head, or from hydrocephalus.

Even in a full-sized pelvis the head rests, during pregnancy, upon the brim, and consequently we ought to meet with rupture from this cause when the diameters are ample, as well as when they are not so. In one or two instances, the lesion might have been due to the long continuance of the labour, while, in Cases CXXIX., CLVI., CLXXVII. and CCI., it might have been caused by long-continued pressure, during utero-gestation, certainly not by protracted labour; while, in Case XXIX., it could be due to neither, as it occurred at the fifth month.

The third explanation of the frequent occurrence of rupture at the cervix, in contracted pelvis, is this: "As the uterus, in its efforts to force the child into the pelvis, acts by shortening itself, the cervix is, in some part of its circumference, a fixed point, being held as in a vice, during a pain between the head and the brim, and after a few pains, more or less, it tears at or near this fixed point, as an over-stretched piece of cloth tears." The value of this explanation depends upon the highly important question, can a perfectly healthy uterus be thus ruptured by the energy of its own contractions? Though in by far the largest proportion of our cases, the condition of the uterus is not stated, or is reported as morbid, nevertheless there appears, in several cases, to have been no lesion discoverable, on careful examination, which could predispose to rupture. In Case CXXIV., there was no such lesion; in Case CXLI., the uterus was very healthy, and the fibre very firm; and in CLI., the womb was perfectly healthy. In these instances, the third mode of explanation may be applicable.

2. Next, what are the causes producing rupture in the body and fundus of the womb? When any portion of the uterus is confined, in the manner just described, between the head of the fœtus and the pelvis, thereby causing a great degree of tension of the uterine fibre during its contraction, it is evident that the walls will give way at the weakest point; and this may be at the fundus, or in the body of the organ, as well as at the cervix. The weakness of any given portion of the uterine structure most usually depends on either a softening or thinning of the walls, in most cases evidently, and in a few others, most probably, from morbid action. Thus, of *forty-*

three cases of rupture of the fundus and body, occurring at the full period of pregnancy, it is stated that, in *twenty*, the uterus was more or less softened or thinned, or otherwise diseased at the place of rupture. In Cases CXXII., CXXIV., CLXXXIII., it is stated that there were no marks of disease; in Case CCXLI., there were "no marks of gangrene;" in more than one it gave way at the place of previous incisions; in Case CCV., all the viscera were gangrenous, the condition of the uterus not being particularly stated. In Case CCII., it was "very firm, and two inches thick."

Of the *ten* rents which involved only the body or fundus during utero-gestation, in Cases XIX., XXI., XXII., the uterus was more or less thinned or softened; while in Cases XXV. and XXVI., there was no appearance of disease. In the remaining cases, the condition of the womb is not stated.

It appears, then, that in a very large proportion of instances in which the laceration takes place in the body and fundus, the uterine structure is diseased and thereby predisposed to the accident. The location of the disease in these instances cannot depend upon either long-continued pressure against the pelvis during pregnancy, or any similar injury during parturition, as has been supposed to be the case when rupture takes place at the neck. It is evidently due to disease of the organ, called into action either by mechanical injury or occurring from idiopathic causes, as from chronic inflammation, or inflammation excited during protracted labour. If the body and fundus may become thus affected, we see no reason why the cervix may not also, and hence the compression of the cervix by the head may have less influence in inducing a morbid condition than has been attributed to it.

The influence of *a diseased condition of the uterus from idiopathic causes* as predisposing to rupture, has generally been enumerated by authors, but a minor place has been assigned to it in the catalogue of the remote causes of this accident. This subject has been more distinctly brought to the notice of the profession by Dr. Murphy, in the *Dub. Med. Journ.*, vol. vii., who calls attention to it as a frequent cause of rupture, supporting this opinion by the post-mortem examinations of several cases; an analysis of these cases will be found in our series. Of *eight* cases, detailed by Dr. Murphy, in which the examinations were conducted carefully by himself, in *four* there was softening of the uterus, and in *three* it was more or less thinned. It is to be regretted that the large number of cases in our series throw less light upon the subject than might have been expected. In a large proportion of these cases, the condition of the uterine structure is not stated—while a part of them note changes which would evidently have been detected only on careful investigation—in most instances only very marked departures from a healthy condition have been recorded—and this undoubtedly is owing to the fact that the attention of observers has not been directed to the detection of the results of neglected chronic inflammation of the uterus during pregnancy, as well as of the changes that may be effected in its structure from inflammation arising during the process of parturition.

Of the *forty-nine* cases in which the condition of the uterus is mentioned, under lacerations in all parts of the organ, in *ten* it is spoken of as *healthy* —in *fourteen*, it was *thinned*—in *fourteen*, it was *softened*—in *one*, both *thinned* and *softened*—in *two*, both *thinned* and *thickened*—in *one*, *thickened* —in *three* others, it was *diseased.*

Thinning and softening were both met with in every degree.

The lesions of the uterus met with in cases of rupture are *thinning* and *softening*—local gangrene may sometimes exist.

Thinning occurring at the cervix, may depend on long-continued compression of the uterus between the head of the fœtus and the pelvis. Occurring in the body of the organ, it may be caused by the pressure of other enlarged and diseased organs in the cavity of the abdomen, by exposure to accidental pressure from without the abdomen, perhaps, as Dr. Murphy suggests, from the separation of a slough after a previous tedious labour, and probably, though our cases present no unquestionable examples of it, from defective development. In Case CCXI., the womb had been pressed upon by an enormous spleen. In Case CCLXXIII., rupture took place, at a point where almost constant daily pressure was made upon the tumour, by leaning against a wash-tub.

When *softening* of the uterus takes place, according to Dr. Murphy, "the uterus loses its elasticity; its parietes are easily torn, and afford but little resistance to the knife. The fibrous structure seems to soften sooner than the membranous: the peritoneum often remains entire, and is detached from the uterus lying loosely between it and the bladder." The distinction between softening and gangrene, he considers difficult; and it is to be determined only by the general state of the uterus: softening being always a consequence of an unhealthy condition of the uterus, while gangrene is not—gangrene is rather a local, softening a constitutional effect.

Rejecting from consideration those of our cases in which no mention is made of the state of the uterus, one or the other of these lesions, in greater or less degree, was met with in a large proportion. It should be borne in mind, that many observations were made by persons whose opportunity for autopsic examinations must necessarily have been limited, and slight alterations would be unobserved by them. We know not whether a more careful investigation would have diminished the number of cases reported as presenting no morbid change, but if we consider even this as a fair proportion of cases in general, it confirms the very important conclusion arrived at by Dr. Murphy, that, *in most cases, rupture depends on a diseased condition of the uterus, and is therefore unavoidable, for the most part,* when occurring in the natural progress of labour. The risk of rupture when any portion of the uterus is in an unhealthy condition, will depend upon the opposition presented to the expulsion of the child; whether from contraction of the pelvis, or excessive size of the fœtal head. Thus, a woman may, with considerable diminution of the diameter of the pelvis, pass safely through successive labours, but the substance of the uterus becoming thinned or softened, it may eventually give way in a subsequent labour, and the patient perish. Case CXXXIX. presents an illustration of this fact; the patient having previously borne four children, and apparently possessing an ample pelvis: chronic inflammation supervening previous to her last pregnancy, which resulted in softening of the uterus, the resistance of a dropsical fœtal head caused laceration of the organ after a very few pains.

4. Again, when the *large size of the fœtal head* presents an obstacle to delivery, it is evident that, although the diameters of the pelvis may be of standard dimensions, they will nevertheless be relatively deficient, and the disproportion will predispose to rupture in the same way that a contracted pelvis does. Case CLV. is an example of such disproportion from a large and firmly ossified head. Cases XLVII., CLXI., CXXXVII., CXXXIX., CXCIII., CCLXXIV., CCLXXV., are instances of disproportion depending on *dropsy of the fœtal head.*

5. *Oblique positions of the head* at the brim of the pelvis, by which an unfavourable diameter of a head of moderate size is presented, will produce similar results. For illustrations of this, see Cases CXXIII., CCXXXVI., CCXCIV.

6. *A transverse presentation of the trunk* occasionally, when not corrected by artificial interference, by presenting an insuperable barrier to the progress of the fœtus, brings about a rupture of the uterus. For examples of this, we may refer to Cases XLIV., CLXVIII., CLXXV., CXCVIII., CCV.

7. Similar to the influence of a contracted pelvis in producing rupture, is that of *insuperable rigidity of the cervix uteri*, depending on chronic inflammation or a carcinomatous condition of that part of the organ, and also of unyielding bands crossing the vagina, these being the result of previous protracted labours, or of the injudicious employment of instruments in delivery. The same may be said of various tumours growing from or falling into the cavity of the pelvis. The influence of a rigid os uteri in causing rupture will be considered more at length at another time. Of the obstruction presented by bands in the vagina, Cases CLXII. and CLXX. are examples. For instances of rupture from rigidity of the os uteri, see Cases XCVI., CVI., CVIII., CIX.

The obstacle to delivery is, in some of these cases, as great as in contractions of the pelvis; and, from long-continued uterine action forcing the head against the unyielding structures, the uterus bursts.

8. *Obliquity of the Womb* has usually been enumerated among the predisposing causes of rupture. In Case CCIX., there was anterior obliquity of that organ; and in Case XXXIV., retroversion.

9. Cases IV., V., CCLII., show that the uterus is liable to rupture in the *place of the incision after the Cæsarian section.* According to Jacquemier, tom. ii. p. 289, "M. Keyser has collected six cases of gastrotomy after rupture of the uterus, in women who had recovered from the Cæsarian section; three of them recovered."

10. Dr. Channing has furnished us two cases, in which *polypus of the womb* was the remote cause of rupture. In one of these, the rupture was attributed to the tumour occupying the pelvis, diminishing the diameter of the passage; in the other, the polypus surrounded the os uteri, and the rent passed through its substance into the cervix, in consequence, probably, of the morbid condition of that part of the organ.

The *immediate causes* of rupture are, first, uterine action, either natural or increased by the operation of ergot, or alcoholic stimulants; and secondly, external violence, as blows or falls upon the abdomen, and forcible attempts to induce artificial delivery.

1. Unless caused by direct violence, rupture must, in almost every case, be the result of the contraction of the uterine fibres, whether the uterus be healthy or diseased. As an evidence, we have seen, that, while there is reason to believe a morbid condition of the womb a very frequent predisposing cause of rupture, even in these cases, rupture usually takes place after a certain continuance of the labour pains of greater or less severity. Thus, in Case CCXXIII., the patient was suddenly seized with uterine pains, which went off quickly, and were succeeded by symptoms of rupture. In several instances, the sensation of rupture is the first sign indicating any degree of action about the uterus. If we glance the eye over cases occurring in pregnancy, we shall find this especially hold good among them. In Case XXXIII., the patient experienced a sensation of rup-

ture while in the act of stooping, and this was soon followed by unequivocal symptoms of the accident having occurred. In Cases XIII., CCV., the patient was awakened in the morning by a severe pain, and symptoms of rupture followed. Cases I., IX., XIV., XVII., XVIII., XXI., XXIV., XXV., XXVIII., XXXI., XXXII., XXXVII., are further examples of the sudden accession of symptoms of rupture, in which the pain attending the laceration was the first experienced.

This accident, occurring as it does under such circumstances spontaneously, is analogous to spontaneous rupture of some of the other organs in the body—as, for example, the heart; of which, as it is well known, there are several recorded instances—for rupture of the heart also may take place in consequence of the action of its own muscular fibres. Both ruptures of the heart and ruptures of the uterus may depend on external violence, or they may occur spontaneously, both when organic alterations in their substance are present, and when they are absent.

Rupture of the stomach presents another instance of the spontaneous laceration of hollow organs within the body, of which there are two cases related in the *Medico-Chirurgical Transactions*, vols. xiii. and xiv. In a work on Hemorrhage, published by M. Lafour, and referred to in *Dict. des Sci. Méd.*, tom. xlix. p. 226, we find a case of spontaneous rupture occurring in the unimpregnated womb after the final cessation of the menses. The womb became immensely distended, and the patient suffered severe pain. After a paroxysm, she felt a disturbance in the abdomen, and the swelling became diffused. She died next day. An enormous quantity of fetid blood was found in the cavity, and a rent in the fundus uteri, admitting three fingers. Womb thinned at the rupture, and thickened elsewhere, the os cartilaginous, and obliterated. In this instance, however, the rupture seems to have been due to over-distension of the uterus. An impression prevails in general, that rupture is almost always connected with protracted and violent labour. The statement that we have already made of the duration of labour in several cases, attended by contracted pelvis, shows the incorrectness of this.

Table of Duration of Labour.

Labour lasted, as nearly as can be ascertained,

1	hour in	3 cases,	12	hours in	12 cases,	27	hours in	1 case,	3	days in	3 cases.
2	hours in	1 case,	13	“	1 case,	30	“	4 cases,	4	“	2 “
3	“	1 “	14	“	3 cases,	33	“	1 case,			
4	“	3 cases,	17	“	2 “	35	“	1 “			
5	“	6 “	18	“	1 case,	36	“	2 cases,		*Average.*	
6	“	9 “	19	“	1 “	39	“	1 case,		21,6 hours.	
7	“	2 “	20	“	1 “	40	“	2 cases,			
8	“	3 “	22	“	1 “	44	“	2 “			
9	“	5 “	24	“	8 cases,	48	“	5 “			
10	“	3 “	25	"	1 case,	60	"	3 "			

From this statement, it appears that rupture may take place at any time after the commencement of uterine contractions, either immediately or after the lapse of many hours.

Rupture, then, may be caused by ordinary contractions, and in an apparently healthy uterus; and want of agreement between the diameters of the pelvis and the head, or any obstruction of the soft parts, predisposes to the occurrence.*

2. If there be risk when the uterine contractions are of their natural

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* In Phila. Med. and Phys. Journ., vol. viii., is an account of a rupture of the womb in a cow.

intensity, how much must the danger of forcing some part of the fœtus through the uterine substance be increased, when the strength of the pains is augmented by *ergot*, or alcoholic stimulus.

The medical journals, for obvious reasons, contain but few cases of rupture from the imprudent administration of ergot. Cases CXXX., CXLI., CCXXII., CCXXIII., however, are instances of it. There can be no doubt that the injudicious exhibition of this drug has been the source of infinite mischief. It is difficult to obtain data upon this subject, for few in whose practice such cases occur would be disposed to report them, and those met with in consultation practice are kept secret from motives of delicacy. Dr. Meigs, in his communication above, remarks that some of the cases which he has seen, at least three followed the "ergotic contractions, induced by the imprudent exhibition of secale cornutum." Dr. Bedford has, in his valuable additions to Chailly's "Midwifery," most earnestly directed the attention of students to this subject, and states that he has, in his museum, four wombs ruptured by the improper use of secale cornutum. F. Ramsbotham, p. 194, relates one case of rupture during a breech presentation, and another in which there was a slight distortion of the pelvis; in both, the catastrophe was mainly to be attributed to the exhibition of ergot; and he has known some other instances of rupture from its employment in cases unfitted to its use. There is reason to believe that it is not unfrequently administered, not only by ignorant midwives, in cases to which it is not adapted, but also by better informed individuals, who disregard the necessary precautions which should regulate its employment.

It is true that there are some cases in which the womb is altered in its structure, and in which rupture would probably occur under the efforts of ordinary pains; and in Cases CCXXIV., CCXXVIII., CXLI., CCLXXXVII., it would appear that the ergot did not materially increase the severity of the contractions; in Cases CCXCIII., CCXCVI., ergot had been given; nevertheless, the great risk of administering ergot under the conditions above specified, can never be too strongly urged upon practitioners of midwifery. It should be a rule, in no case to be departed from, to refrain from the administration of this medicine, when any disproportion exists between the head and the pelvis—caused either by contraction of the diameters of the pelvis, or excessive size, or by malposition of the head—in presentations of the trunk and superior extremities—when obstacles to the birth of the child exist, as from morbid contractions of the vagina, and obliterations more or less complete of the os uteri—and, also, before the os uteri is *completely dilated, or at least perfectly dilatable.*

3. Rupture may be produced by mechanical violence, as from falls and blows, to which the patient may have been subjected; and also from injuries inflicted during the unskilful performance of obstetric operations, especially that of introducing the hand into the womb in order to deliver by turning. Instances are spoken of by authors, of great damage inflicted by the forcible introduction of the blades of the forceps, by which the uterus has been torn from the vagina. Histories of cases of this kind, also, are rarely met with in medical journals, from reasons similar to those that prevent the publication of cases of rupture following the abuse of ergot. It is only when here and there the voice of a man is heard, whose extensive experience has afforded ample opportunities of becoming acquainted with the mal-practice of the ignorant or the inexpert, that we have any means of estimating the amount of mischief arising from this source. Dr. Collins

has known the mouth of the womb torn by the imprudent use of forceps, when the os uteri was undulated.

Blundell, p. 701, says, "there are two great causes to which lacerations of the uterus may be ascribed, and the one is continued resistance to the passing of the fœtus; and the other is obstetric violence, whether of instruments or the hand." F. Ramsbotham says, "it may be the consequence of forcible and improperly conducted attempts to turn under a shoulder presentation; of which sad catastrophe I have unfortunately seen more than one instance; or, again, it may be caused by instruments in the hands of the ignorant, the careless, or the inconsiderately rash."

Cases XLVI. and CCVII. are instances of great violence in the use of instruments in both of which rupture took place, probably, in consequence of such violence. In Case CXLII., there was a very protracted use of forceps, though their influence in producing rupture is not so certain. In Case CCCIII., the forceps were thrust through the anterior wall of the womb into the bladder. In Case CCXCV., rupture of the cervix was produced by a midwife in attempting to turn. In CCVII., there were no symptoms of rupture before the employment of instruments. In XXXVI., it was caused by forced dilatation of the os uteri. In a case mentioned by Dr. Ingleby, *Dub. Med. Journ.*, vol. viii., p. 441, the practitioner, in an attempt to deliver by turning, passed his hand through the anterior part of the vagina into the abdomen—the intestines protruded—and the patient soon expired. Hamilton says he has been called to several cases in which he found the proper texture of the uterus extensively lacerated, but the organ kept entire by the peritoneal covering, in consequence of the finger of the practitioner being pressed through it, from a neglect to observe the well established rules of procedure in delivery by turning.

While rash and ignorant violence exposes the patient to such imminent risks, it is important to know that rupture may occur during judicious and carefully conducted attempts at delivery, and when no blame can be attached to the unfortunate attendant. In Case CXLIV., although version was performed by a midwife, and occupied an hour, the medical attendant who subsequently took charge of the patient, considered her qualified for performing the operation. In Case CCLXXXIII., rupture occurred during version, the os being obstructed by a polypus. In Case XXXV., it occurred during version, the uterus being extensively diseased; and in Case LI., it happened after application of forceps. In Case XLIII., under a breech presentation, it occurred when half the trunk had passed the vulva. In Case CXXXIII., rupture took place when the child was half delivered by version. In Cases CXXXI., CLX., CLXI., CLXII., delivery was effected in consequence of convulsions, hemorrhage, &c., though rupture perhaps in part of these, may have taken place previous to the commencement of delivery. Cases XXXVIII., CXIII., CCLXI., CCLXII., are instances of rupture occurring to practitioners of undoubted skill, while making vaginal examinations during the presence of a pain. Case CCXCII. is apparently an instance of rupture occurring during judicious, but protracted and difficult artificial delivery. It is nevertheless ever to be borne in mind that even those qualified by education to conduct obstetric operations, may, by a neglect of proper caution, bring irreparable mischief upon their patients.

In Cases XLIII., L., LXVII., LXXXV., CLXXXIII., CLXXXIV., CLXXXIX., CCIII., CCLXXXIII., the accident followed a *blow, fall, or other mechanical violence*, inflicted upon the abdomen. In XC., the patient suffered an injury during pregnancy, but appears to have been well after it. In a portion of these cases, the effect seems to have been immediate, rupture taking place at once, and manifesting itself by all the symptoms of serious injury of important abdominal viscera. In other cases, the uterus appears to have undergone a chronic inflammation, which has resulted in softening, or gangrene, and consequently predisposed to rupture when the parturient process should begin. In Case XLIII., it is stated that there were morbid adhesions of the placenta, occurring in a patient who had fallen some time previously; the condition of the uterus is not stated, yet it is probable that its substance had also undergone changes which had predisposed to rupture.

4. By a reference to the earlier writers on midwifery, it will be seen that some, as La Motte and Levret, attach great importance to *violent movements of the fœtus*, as a cause of rupture. Cases CCIV., CCXXXVII., CCLV., afford instances of this accident, following *immediately* after the violent convulsive movements of the fœtus. It can scarcely be conceived that any such movement can be sufficiently powerful to cause a laceration of the parietes of healthy uterus; indeed, after the escape of the waters, it must be regarded as impossible; and, in the cases referred to, the escape of the fœtus into the peritoneal cavity through the laceration, must have been coincident with the occurrence of the rupture, and a mere accompaniment of the accident mistaken for its cause. When, however, the uterus is diseased to the degree presented in some of our cases, such an event as this may not be considered impossible.

5. Cases XX., XXX., CCXXXVI., show that rupture may follow intense emotion, as has already been alluded to, in considering some of the peculiarities attending rupture, during utero-gestation. Such instances must be regarded as very remarkable, and as affording most striking exemplifications of the influence of the emotions over the various organs of the body. Such occurrences are to be regarded as perfectly analogous to rupture of the heart, under violent mental excitement. The influence of mental emotion in determining uterine action, in cases of abortion, following intense anger, grief, and joy, has been occasionally remarked; but, that uterine contraction may be excited from these causes, to such a degree as to produce a spontaneous rupture of the uterus, must be regarded as of great interest.

VII. *Pathology of Rupture.*—Our abstract of cases embraces only the most important circumstances connected with the pathology of this accident; and, for many interesting particulars, we would refer to what we have said of the influence of a diseased condition of the womb in producing rupture.

Situation of the Rupture.—Of cases occurring during *utero-gestation*,

7 were of the fundus.
1 was of the posterior part.
2 were of the anterior part.
2 " of the right side.
1 was of the left side.
3 involved the cervix and vagina.
1 from cervix to fundus.
1 of cervix, body, and the bladder.
2 of posterior and inferior part.
1 lower segment of womb torn off.

Of cases occurring during *parturition*,

11 were of the fundus.
13 " of the posterior part.
14 " in the anterior part.
8 " of the right side.
7 " of the left side.
2 " of the vagina.
15 from cervix to fundus.
2 involving the bladder.
47 at the cervix, and involving the vagina, and separation from the vagina.
2 of the "body."
7 transverse.

Total.—In cases occurring during *parturition*, rupture in the body and fundus—63.

Of the cervix, involving more or less the body of the uterus, and the vagina—64.

Of cases occurring during *gestation*, the *total* is of the fundus and body—13.

Of the cervix, involving the vagina and body more or less—8.

The latter class, in both cases, includes those in which the lower segment was torn off, and those occurring in the "posterior and inferior" part of the womb; since the boundaries between the relaxed uterus and the vagina, during life, at least, would be necessarily quite indistinct where rupture had occurred. From the indistinctness with which the location of the rupture is in many cases specified, those described as being in the superior, and posterior, lateral, or anterior part, have been classed among those of the fundus and body; and those described as being the "posterior and inferior" part, assigned to the body and cervix.

It is usually stated by authors that the cervix is the most frequent seat of rupture. Among the cases quoted from Dr. Collins' most excellent work, we find the rupture, in the largest number of instances, in the cervix. We are inclined to believe that the exact situation of the rent has in many cases not been noted, and that the cervix was also involved when the rent is described as in the "anterior" or "posterior" part. Dr. Smellie, vol. iii. p. 384, in speaking of a case in which he found a slight rent of the vagina, after delivery, and in which the os was "a little torn also," says: "I was afraid of the worst from the laceration of these parts; but the woman recovered without any bad symptoms. . . I have had some others in which I have been sensible of the os uteri having been rent; but never found it of bad consequences, unless the patient was thrown into a fever by bad management, or other dangerous symptoms." Dr. Lever, in *Guy's Hospital Reports*, for Oct. 1845, p. 183, in describing a case of vaginal hysterotomy, says: "I selected the sides of the mouth for the situation of the incision, for several reasons; first, at the sides of the womb the rigidity was the greatest; secondly, it is at the sides of the womb we usually find lacerations, when they take place spontaneously, as is *frequently seen in protracted labours.* When the waters pass off early, and when the os uteri is thin and tense, such a lesion is by no means unusual. I have on *many occasions* pointed it out to the students of this hospital, who have filled the office of obstetrical clinical clerk."

The statement of Dr. Lever, that such a lesion is by no means uncommon, we apprehend could not be corroborated by the observation of practitioners in general. Those, however, who have made numerous examinations of the cervix uteri by the speculum, state that deep fissures of the os are not unfrequently met with, which must have taken place during former deliveries; and we have recently delivered a woman, in whose os uteri there was a fissure, probably the result of a similar laceration. Careful examinations instituted during, or immediately after labour, may reveal it to be not an unusual occurrence for such unimportant lesions to take place where there is a rigid os uteri.

The rent may occur in any direction—longitudinal, oblique, or transverse.

In Case XV., the uterus was *bifid;* and the rupture took place in the division which had been impregnated.

In Cases XXI., XXXII., CXLIV., CLVII., CLVIII., CLX., CLXXII., CLXXIII., CLXXIX., CLXXXII., CLXXXIV., CCLIII., the rent involved the muscular coat alone. Hamilton (*Pract. Observs.*, Am. edit., p. 107), remarks that, "considering that the uterus, at the full period of gestation, is so soft, that the fingers can be pressed through it with as much facility as through a wetted sponge, it is surprising that ruptures do not more frequently take place in artificial delivery." In several of the above cases, the muscular substance was evidently in a state of disease, but the physiological condition of the healthy uterus, in which some of these appear to have taken place, can scarcely be considered so fragile as is described by that author.

In Cases XX., XXXI., CXCIX., CCLV., CCLIX., CCLXXXV., CCLXXXVI., the rupture involved the peritoneal coat alone. See Cases CCLXXXV., CCLXXXVI., and the remarks following. In these instances, the lesion has been described by several different observers, as presenting the appearance of having been produced by a pen-knife. In the most, only the peritoneum was involved; in some, a few superficial fibres of the muscular substance were torn; in Case CCLV., a large vein running among the superficial fibres was ruptured, and the hemorrhage from it caused the patient's death. In a part, the whole surface of the uterus is occupied by these crack-like rents; in others, as in CCLXXXV., it was confined to the neighbourhood of the Fallopian tubes. In two instances, these fissures were of a crescentic shape, with the convex part toward the fundus, and presented the appearance of scarifications.

In CLXVIII., there was a rent of the muscular coat, and one of the peritoneal, the two not corresponding. *Softening* and *thinning* of the uterine tissues are met with in every degree. In CCLVI., it was oily, soft and doughy; in CCII., very firm. In CCLX., it was soft as jelly. In CCXXIII., it was unusually soft. In CLXXXII., the uterus was not thicker than strong brown paper. In CLXXXV., it was not thicker than paste-board in some parts; in others, three and a quarter or four inches thick. In CCVI., it was in part thin as paper, and in part frail as cobweb. In CCXXXIX., it was one-eighth of an inch thick, and tore like writing-paper. In Case CCLXXIII., it was thin as membrane. In Case XXXVII., it was extremely thin and very friable. In Case XIX., it was thinned and softened. In CCXLII., it was preternaturally thickened. In CLXXXVI., it was partly thinned, and in part thickened. In CCLI., the edges of the rent were apparently gangrenous. In Case CCV., all the viscera were gangrenous. In Case CCIV., forty days after rupture, the uterus, &c., was putrilaginous." In Cases CLVII., CLX., the uterus was diseased from syphilis. In most, the edges of the laceration were ragged and irregular.

The colour of the morbid tissues varies; in some it is brown, in others red. In Case CLXXXVII., it was of a pink colour, and where there has been much hemorrhage, the uterus is very often quite blanched. In Case CCLXXIII., it was perfectly black. Sometimes the colour is a dirty green, from the altered blood, and this appearance might be mistaken for gangrene. Gangrene was found when death has taken place several days after the rupture; but it is rarely met with in an examination soon after the accident, as the result of inflammation arising in the course of labour. In Case CCLI., there was the livid appearance of gangrene; in Case CCLXVIII., the woman died fourteen hours after rupture, and the womb was putrid. In neither of these cases was the labour unusually protracted.

In Case XXIII., the bladder and uterus were united by false membranes. In Case CCXIX., the rent involved the bladder. In Case LIV., the patient passed blood in the urine. In Cases XVIII., XX., XXIV., the ovaries were involved in disease. Case CCXXX., was subject to uterine hydatids. In a large number of cases, blood, or sero-sanguineous fluid, often to a very large amount, is found in the peritoneal cavity, mixed oftentimes with coagula. When rupture occurs before the escape of the waters, the amniotic liquid is also found among the intestines.

In Cases XVI., LXX., and CCLXIX., more or less perfect cicatrices of former ruptures were found.

Rupture is liable to occur, in labours succeeding those in which the Cæsarean section was performed. According to Dr. Merrem, of Cologne, (see *Ranking's Abst.*, vol. ii. p. 128,) this depends upon the nature of the cicatrix, by which wounds of the uterus are united. In some it is closed merely by peritoneum; and in one case this author found, on resorting to the Cæsarean section a second time, that the former incision was four inches long, and three fingers in breadth, concave instead of convex, and composed of white, glistening fibres, with a dilated blood-vessel running close to either margin. This portion not contracting equally with other parts during labour, exposes the uterus to rupture.

In the cases in which the patient was abandoned to the resources of nature, and yet not at once fatal, the fœtus remaining in the peritoneal cavity, we learn from Cases XIV., XXIII., LXX., CXLII., that the fœtus becomes invested in false membranes, by which it becomes separated from the viscera of the abdomen. In this way, it appears that the patient may survive many years; most usually, however, in from a few weeks, as in Cases II., IV., LII., LXIV., CCXXX., to months or years, as in Cases LXXII., LXXIII., XCV., CXVII., CCX., the fœtus is discharged piece-meal through fistulous openings in the abdomen, *per vaginam* and *per anum*. In Cases VI., XIV., LXXXVII., CXI., CCLXV., when an opening had been formed by nature, through the abdominal parietes, art aided her efforts by making an incision of a few inches in length, and removing the *debris* of the fœtus. In most, if not all such instances, however, adhesions had previously taken place between the peritoneum and the parietes, immediately around the fistulous opening, leading to the sac which is formed around the fœtus, and consequently the incision through the abdominal walls does not necessarily lay open the cavity of the peritoneum.

In Cases CLIII., CLXI., a psoas abscess was found on post-mortem examination, as a result of the inflammation following the rupture.

Cases CCLXXVI., CCLXXVII. afford examples of a very unusual lesion of the uterus, in one of which the placenta was found protruding from the fundus into the cavity of the peritoneum, and in the other, an opening of a similar character was found, the placenta having been withdrawn during life. Occurring, as death did in both cases, several days after delivery, it would be very difficult to ascertain what was the condition of the womb at the time of rupture. Dr. Channing thinks that a morbid condition of the uterus might have preceded the accident; labour was at any rate the exciting cause.*

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* A case analogous to these is quoted by Dr. Ingleby, (*Lond. Lancet*, 1839–40, vol. i. p. 635,) which is probably an additional portion of the history of Case XIV., in which it is said, "the attenuation had actually produced a breach of surface, and a portion of disrupted placenta had partially entered the belly."

Table of Ages.

16 years	1 patient.	27 years	3 patients.	38 years	5 patients.
17 “	1 “	28 “	14 “	39 “	1 patient.
18 “	1 “	29 “	2 “	40 “	6 patients.
20 “	4 patients.	30 “	19 “	42 “	1 patient.
21 “	3 “	32 “	9 “	43 “	2 patients.
22 “	1 patient.	33 “	6 “	44 “	4 “
23 “	1 “	34 “	4 “	47 “	1 patient.
24 “	5 patients.	35 “	8 “	40 to 45	1 “
25 “	7 “	36 “	17 “		
26 “	8 “	37 “	6 “		

Table showing the number of the Pregnancy.

Of 1st pregnancy,	24 patients.	Of 7th pregnancy,	9 patients.
“ 2d “	18 “	“ 8th “	5 “
“ 3d “	17 “	“ 9th “	5 “
“ 4th “	21 “	“ 10th “	9 “
“ 5th “	18 “	“ 11th “	8 “
“ 6th “	16 “	“ 12th “	3 “

13th pregnancy, 2 patients.
Several pregnancies, 17.

It is stated by several writers that ruptures during a first pregnancy or labour, are rare. The above table, however, exhibits even a larger number during a first labour, than during any other. The discrepancy may be accounted for by the fact, that the comparison is usually made in the mind, between the first labour, and all subsequent labours taken together, and not as it should be, between the first, and any other individual labour, as between the first and second, or the first and sixth.

VIII. *Symptoms of Rupture.*—The symptoms of rupture of the uterus are usually well marked, and the uneducated observer cannot but see that something serious has occurred to the unfortunate patient. When this accident takes place during parturition, it is generally during a pain of unusual severity. The patient is conscious that something has given way within her; she feels a tearing or rending sensation, and in some instances the noise accompanying the rupture has been heard by the bystanders. But, whether the patient be conscious of any peculiar sensation, or not, almost immediately afterward the stomach rejects its contents, the countenance assumes an expression of anxiety, and on examination *per vaginam*, the presenting part is found to have receded; the contents of the uterus are high up in the abdomen; perhaps the limits of the fœtus can be distinguished immediately beneath the parietes, and there is slight hemorrhage from the vagina.

Very soon, dark-coloured matter is ejected from the stomach, the pulse becomes rapid and feeble, the skin cool over the whole body, or over the limbs alone, and covered with perspiration; there is great distress in the abdomen, and great sensitiveness to pressure upon its surface. If there be large hemorrhage, the abdomen becomes tense and distended. If no relief be afforded, the unhappy patient dies within a few hours, of hemorrhage, or from the shock which the constitution has received, or lingers a few days to perish from inflammation; or, perhaps, as happened in a few rare cases, life is continued, and the fœtus is discharged piece-meal.

To the occurrence of each and all of the symptoms above described, there are numerous exceptions; and the practitioner should, therefore, be prepared to meet with cases of this accident in which the symptoms are far from distinctly marked. By a reference to our cases, we shall see that the symptoms occur in every degree of intensity and in every variety of combination.

Thus, of those cases in which the character of the labour previous to rupture, is stated: in *twenty-nine*, the pains were *very severe;* in twenty-three, *strong;* in *twenty-eight*, *moderate;* in *ten*, *feeble;* and in *eleven*, the labour is characterized as *tedious*. From the variety of terms used by different individuals to describe the character of the labour, in the cases which they relate, it is somewhat difficult to classify them, but they have been arranged under the above heads as the most eligible.

In *twenty-seven cases*, the pains ceased *suddenly;* in *ten*, they are reported as having ceased *gradually*. In *seventeen*, the head receded; in several, it did not recede; and in several, it was impacted.

In Cases CVI., CXIX., CCXIV., CCXXVII., CCXXXIX., CCXCVII., CCXLIV., the noise of the rupture was heard by the bystanders, and in CCXXIV., it was so loud as to awaken the physician who was taking a nap in an adjoining room. In CXV., there were two loud cracks, as if the rafters had broken. In CCLVII., a sound was heard at the instant of the probable escape of the fœtus into the peritoneal cavity, as of something suddenly escaping from a confined place. In Case CXCI., she said the child had slipped into the belly. In Case CCXIV., complained of a "strange lump" in her side. In Case CCLI., she exclaimed that the child had gone back. In CCLXV., an apparent movement of the child attended the pain.

In Case XCIX., the patient felt as if something had slipped out of its place. In Case LXII., there was a sensation as of two children in the abdomen. In Cases XLII., LXVIII., CXXV., CXLI., CLXXXVIII., CCXI., CCXXI., CCXXVII., CCXXXI., CCXXXIV., CCLVII., CCXLIV., CCLXIV., CCXCIV., CCCI., CCCII., there was a sensation of something giving way within the abdomen. In Cases LXXXI., C., CXL., CXXIII., CCXLIV., CLVII., CCXIV., CCXVI., CCXVIII., CCXXIV., CCLXXIV., there was a sudden sensation, and, in part, an exclamation of pain in the abdomen, in some cases not severe, in others of great intensity. In CXXIV., it was as if a sword had passed through her; in XCIV., a sense of "stabbing." In Cases XCI., CXCV., CXCVII., CCXIX., the pains are described as cramp-like, or spasmodic. In Case CCLV., there were slight pain and faintness.

In Case CCVI., although rupture was suspected, there were none of the ordinary symptoms attending that accident; no pain or sinking, and no motion of the fœtus. In CCXXVIII., there had been no vomiting, sudden screaming, or other symptom of rupture, and ten hours after the occurrence, she was only a little restless, and respiration a little hurried; and yet there was a rent two-thirds across the uterus, and the patient died. In Cases CCLXXVIII., CCXCI., the first symptom of rupture was recession of the head. In Case CVI., the patient died without appreciable cause. In CCLVII., the only symptom during the many hours that elapsed before death, was a gradually increasing weakness, and occasional rigors; and here the rent admitted the hand. In CXCIX., there were no alarming symptoms, but she gradually sank. In Case CCLXXIV., perfect repose followed the accident.

In Cases LXXXIX., CLV., CLVI., CLXIX., CLXXI., CCXV., CCXXV., CCXXXII., CXXXV., CXLIV., the first indications of rupture were cessation of pain followed by collapse. In Case CCXCII., there occurred a sudden tympanitic enlargement of the abdomen, the air seeming to be very near the surface.

IX. *Diagnosis.*—To avoid repetition, we refer to the description already given of the symptoms preceding, attending, and following the accident; both when it occurs at the full period, and before the full period of utero-gestation. The two circumstances which are *diagnostic* of the accident, are, first, a recession of the presenting part, which almost always happens when the rupture is at the fundus, or in the body; very often when it is at the cervix, and sometimes when it is confined to the vagina; and 2d, the ability to distinguish the limbs of the fœtus beneath the parietes of the abdomen, when they were not felt before. It is important to remember, however, that if the head is impacted, it cannot retreat, and, also, that in some persons, the walls of both abdomen and uterus are so thin, that the limbs of the fœtus can be clearly made out by an examination of the surface of the abdomen by touch, though no rupture has occurred.

X. *Prognosis.*—What the actual rate of mortality in this accident is, taking a large number of cases, it is impossible to say. As we have already remarked, our series does not exhibit this, inasmuch as it does not embrace *all* the cases which the individual observers have met with. Formerly, it was regarded as so necessarily fatal, that it was considered the most humane to let the patient alone; experience and enlightened observation, however, have taught, that much can be done by art for the patient's relief, and to increase the chance for life, as we shall more fully show, while, if left to nature, the chance of recovery is indeed almost nothing.

According to the experience of Smellie and Lever, slight lacerations of the os during labour are attended by comparatively little hazard, while several such cases, in our series, occurring in the practice of others, have proved fatal.

In making a prognosis, much consideration would naturally be given to the extent of the injury and the parts involved, the amount of hemorrhage, and the constitutional shock.

If the peritoneum remain entire, it is evident that the patient escapes, in a great measure, the risk of peritonitis, which so frequently is the immediate cause of death, when the patient has survived the immediate effects of the accident. If slight lacerations of the os are less hazardous than lesions of other parts of the organ, it is because the peritoneum has remained uninjured, and because the rent has not advanced sufficiently far into the cervix to lacerate the large vessels and endanger life from hemorrhage. The exact extent of the rupture has been given in only a few cases, and we have, therefore, no positive means of showing the influence of extent on the mortality; but if we are not mistaken, the distance to which the rupture extends has but little, if any, influence on the mortality in those instances in which the peritoneum is involved, inasmuch as a lesion of that membrane, of small extent, must necessarily be followed by peritonitis.

When the muscular coat only is involved, the patient is exposed to the risks of metritis.

Our cases collectively do not teach us that lacerations of the cervix itself, extending up into the body of the womb, or down into the vagina, enjoy any immunity over ruptures in any other part of the organ, and the greater part of the cases reported by Dr. Collins were of the cervix, and, of the whole, only two recovered. The amount of hemorrhage is difficult of estimation, inasmuch as the flow of blood being usually into the peritoneal cavity, it is rarely profuse from the vagina. Several of our cases show that the patient may rally from the combined influence of hemorrhage and the constitutional shock.

If reaction come on, the patient is to run the risk of the irritation of the fœtus if she remain undelivered, and of the inflammation essential to the process of reparation, if the child be artificially removed. It is desirable that we should know the mortality of this accident, for an impression, even at this day, prevails with very many, that it is of very little use to do anything for the patient, inasmuch as she must almost necessarily die. We think the mortality much overrated. If individual experience be consulted, we shall find it to differ widely. Of the thirty-four cases reported by Dr. Collins, only two recovered; but we must remember that the thirty-two who died, were, at least, inmates of a pauper lying-in asylum—part of them worn down by disease, and, in all probability, few, if any, were in a condition to suffer any severe accident with much chance for recovery. These give the proportion of *one* recovery in *seventeen* cases. The cases of Drs. Channing and Bedford, occurring in consultation practice in large cities, were, for the mort part, of an entirely different character, and, with a few exceptions, among patients enjoying the comforts of life. Dr. Channing remarks, that the recoveries among his cases is about *ten per cent.*, or *one in ten.* Of the eleven cases of Dr. Bedford, there were three recoveries, or *a little over one in four.* We can obtain the true mortality of this accident, only by practitioners of large experience keeping an account of such cases through a series of years, and presenting the result to the profession. Could we be sure that the mortality among patients in comfortable circumstances were even as small, relatively, as one in four, fearful though that indeed be, the knowledge of it would certainly encourage and embolden the physician in his efforts to afford his patient the best chance of recovery.

The prognosis in any particular case must be a matter of great uncertainty, inasmuch as some have recovered from most extensive lacerations of all the coats of the uterus, while others have perished from very slight lesions of the peritoneal or muscular coat alone; and this, too, where there were no apparent differences of circumstances sufficient to affect the result of either. The amount of danger that may be incurred during inflammation, can, of course, never be anticipated.

Since a morbid condition of the womb is, in many cases, a predisposing cause of rupture, the question arises, can such lesions be detected previous to parturition, and are there any circumstances indicating its existence after labour has commenced? It is rare, we know, that disease of any important organ exists without affecting the general health, especially so in the case of one, connected as is the uterus, by intimate sympathies with the entire animal economy. Yet occasionally cases of extensive lesions of vital organs are revealed by autopsies, which were not suspected during life, or which were manifested by symptoms far disproportionate to the extent of the disease. This holds good in reference to the uterus, so far as the very imperfect results of our cases in this respect afford any information. The condition of the patient before labour, unfortunately, is stated but in very few cases.

Of those in which the uterus was found *softened*, Case CLXXXVII. was "stout." Case XVIII. had been a subject of *severe dysmenorrhœa;* and though the variety is not stated, we can conceive that a degree of congestion of the uterus might have existed, sufficient to produce an alteration of its structure—or, indeed, the rupture may not have been dependent at all upon it. Case XXII. had had one child and three miscarriages. In the rest of the cases in which the uterus was found softened, no mention is made of previous health; hence the patients may have been healthy, or they may have been sickly.

Of cases in which the womb was found *thinned*, XXXIII., LVII., CXXIII., CCXCIV., were *healthy*. In Case CXXI., there was severe pain in the bottom of the belly, with a tendency to vomit for two weeks before delivery: Case CXXXI. was delicate: Case CLXXXVI. had four premature births, and the uterus was felt to be diseased in a previous labour: Case CCXXIII. had always suffered before and after labour: Case CCLIV. was sickly.

Of cases in which the uterus was *healthy*, we find the previous health in Cases XXVI., CXXII., CLI., CCII., CCXXI., was good, and probably in Case XXV., in which it happened after a long walk. On the contrary, in CCXIV., the patient is reported as "*delicate*."

Although, considering the extent of our series, these results are meagre, they are nevertheless valuable so far as they go, and show on a small scale what we would expect to find true on an extended examination, which is, that, although in some cases in which lesions of the uterus exist previous to labour, the general health is unimpaired, still, in a very large proportion of cases in which the uterus is found healthy, the patient enjoyed previous good health.

Of the remaining cases in which the previous state is described, in *twenty-three*, the patient was *healthy*, in *eight*, more or less *diseased*.

Nothing, therefore, in the previous history, would lead us to fear the occurrence of rupture, unless the following—when the patient has complained of distress in the abdomen, especially if there has been any unusual constitutional disturbance, or if any violent injury has been sustained during pregnancy, with persistent pains at the spot where it was inflicted, we may fear the existence of a morbid condition of the uterus which will predispose to rupture.

Does the course of the labour furnish any indications of the existence of disease? In the following, the uterus was thinned or softened. In Case CXXIII., the pains were lively, not violent. In Case CXXV., tolerably strong: in Case CXXVIII., labour strong; in Case CXXXI., labour of twenty-four hours, and ruptured in version; in Case CXLI., pains feeble till ergot was given; in Case CLXXXVII., pains very strong; in Case LVII., pains sharp, severe, and quick; in Case CCVI., labour regular; in Case CCXXIII., sudden seizure; in Case CCXXVIII., pains very slight; in Case CCLIV., strong pains; in Case CCLV., after a single sudden pain; in Case CCLVI., pains vigorous and ceased gradually; in Case CCLIX., regular pains for two hours; in Case CCLX., rupture toward the end of the first stage; in Case CCLXXIX., pains moderate.

These cases show us that, although in several instances in which the womb is diseased, the first efforts at the contraction of its muscular fibres produce rupture, yet in others, as CLXXXV., &c., though soft and easily torn, it sustains itself under violent contractions for many hours, contractions apparently as violent as would occur in a perfectly healthy uterus.

XI. *Treatment.*—Let us first inquire if our cases afford us any encouragement to leave patients, suffering from this accident, to the unaided resources of nature.

We have said that English practitioners long advocated the principle of non-interference by art. Smellie appears to have looked upon the occurrence of rupture of the womb as necessarily fatal; and one of his former pupils, in detailing a case, very coolly remarks: "According to your prudent advice, I spoke nothing of the matter, but pronounced her a dead woman." *Op. cit.*, vol. iii. p. 386.

Dr. Denman, in his essay on Rupture of the Womb, p. 17, says, that if we take into account that the few instances of recovery are those in which no operation was performed, we are warranted in coming to the conclusion, that "*when the uterus is ruptured at the time of labour, both reason and experience show that the patient has a better chance of recovery by resigning the case to the natural efforts of the constitution, than by any operation or interposition of art.*"

Dr. Dewees, in an essay, published in the *Philada. Med. and Phys. Journ.*, vol. i. p. 77, warmly opposes this, by argument and the citation of cases of recovery, and challenges "the advocates of Dr. Denman's opinion to furnish a single instance of recovery from rupture of the uterus or vagina, at full time, when the fœtus had been permitted to remain undelivered; and we do this without fear of its being accepted." He considers that there is strong reason for calling in question the identity of cases purporting to be instances of recovery after the escape into the peritoneal cavity. He considers these to have been instances of extra-uterine fœtation. "In no one instance, in cases of this kind, that we have yet examined, have the same symptoms which mark rupture of the uterus, occurred," and he would expect to find traces of such rupture after death.

F. Ramsbotham, *Pract. Obs.*, p. 423, is of the opinion that almost all such cases were instances of extra-uterine conception.

Lee and Merriman, as we have seen, and others following them, not only regard such to have been veritable cases of uterine rupture, but they believe that abandonment to nature offers the woman the best chance when the fœtus has escaped into the abdomen, and the womb has contracted.

So convinced, however, is Dr. Dewees, of the impossibility of recovery after complete rupture and escape, that he labours very hard to show that in reputed cases of recovery, the muscular tissue alone of the womb must have been torn, the peritoneal remaining entire and forming a sac enveloping the fœtus. This view, however, is too exclusive, for in Case LXX. the child passed into the abdomen, and remained twenty-five years, and, on examination after death, the place of rupture was distinctly visible. This, with Case CCLXIX., in which, after five months, the place of rupture, which had been apparently very large, was nearly cicatrized, shows that patients may survive, after rupture of all the coats of the womb, and escape of the child.

In reference to the class of cases now referred to, we know not but they were, in part, instances of extra-uterine pregnancy. This much may be said, that their publication as cases of recovery from rupture of the womb, may be regarded, to a certain degree, as *prima facie* evidence of their being so, because we must presume that their authors, some of whom we know to have been responsible men, had reasons, to them satisfactory, for styling them such, rather than instances of extra-uterine fœtation.

In this investigation, we are willing to assume that all the cases on record, purporting to be instances of recovery after rupture and escape, are genuine; and we have, accordingly, included them as such in our series, thus granting the advocates of non-interference all they can claim. It is enough for us to show that granting them every such case, a far larger proportion die when thus abandoned, than when delivered by art, and that, therefore, our duty requires active interference.

Our series of cases shows that the principle upon which the profession now almost universally act, of accomplishing delivery after rupture, is a correct one. Of 154 delivered by artificial means, 97 *died*, 57 *survived.*

Of 89 abandoned undelivered, 65 *died*, and 24 *survived.*

Of 31 delivered by natural efforts, 20 died and 11 survived, and these include, in both instances, cases of rupture of the os, in which the peritoneum was not involved.

Of 6 in whom artificial delivery was tried and failed, all died undelivered.

A comparison of those delivered by art and of those abandoned undelivered, yields 37 of the former, as saved, to 27 of the latter, in the hundred, showing that the chances in the former case are considerably better than in the latter. This, however, is to be regarded as mere approximation to the truth, for reasons to be more fully stated. It does not give the actual success of either course of procedure, but still enables us to form some idea of the relative success of the two. It should be remembered that in many instances, delivery was delayed until the patient was *in articulo mortis*, and in several others the injudicious attempts employed, could not but have hastened this fatal termination.

Among the class of cases abandoned, we include those in whom life was subsequently saved by an incision in the abdomen, and removal of the putrid fœtus.

But even were not the success of artificial delivery greater than that of non-interference, the fact that those delivered *survive* the accident longer than those who die undelivered, shows that it is the part of humanity to give our patient the chance of even the few additional hours of existence which delivery affords.

Of those who were delivered and died, there survived

1 hour or less	3	18 hours or less	2	5 days	3
2 hours "	4	20 "	2	6 "	3
3 "	1	23 "	2	7 "	1
4 "	2	24 "	5	8 "	2
5 "	1	29 "	1	10 "	1
7 "	1	30 "	1	11 "	2
10 "	4	36 "	5	25 "	1
12 "	1	40 "	2	26 "	1
14 "	2	42 "	1	28 "	1
15 "	1	2 days	8	8 weeks	1
16 "	1	3 "	8		
17 "	3	4 "	5		

Of those who died undelivered, there survived

1 hour or less	4	14 hours or less	1	5 days	1
2 hours "	4	18 "	1	9 "	1
3 "	1	20 "	1	2 months	1
4 "	1	36 "	1	5 "	1
6 "	2	42 "	1		
9 "	1	2½ "	1		

If we take the average of both classes under *forty-eight hours*, the number of cases beyond this, of those dying undelivered, being too small for any correct comparison with the corresponding who were delivered, we find that the average continuance of life after rupture, with those *delivered*, is *twenty-two hours*, while that of those *undelivered* is only *nine hours*.

Rupture during pregnancy, as has been said, must be treated upon the same general principles as when it occurs during parturition. From our cases it will be seen that it would be unnecessary to discuss the treatment of the two classes separately, for we find symptoms of labour coming on during the latter months of pregnancy, and even as early as the fifth, accompanied by rupture of the uterus, and the same mode of treatment resorted to, that is turning, perforation, gastrotomy, &c., as at the full time. There can be but little, if any difference, in the consequences to the patient between rupture and escape into the abdomen, at the fifth, sixth, seventh, or eighth, and at the expiration of the ninth month. In both instances, the peritoneal coat is torn, and a foreign body forced into the peritoneal cavity. We know not, so far as regards practical inferences, where the necessity is of making any distinction based upon the degree of advancement of pregnancy. It is only in the early months that the degree of development of the fœtus can make any difference; but these cases are excessively rare, and from the result of the few occurring in our series, it would seem that they form no exception to the great fatality of the accident at the full period of gestation. The treatment of cases of rupture during pregnancy, and during parturition, will be considered together, the results under each individual class being occasionally given, when of any particular interest.

First let us consider cases of rupture and of escape into the abdomen of the whole fœtus, or of the *head*, with the whole or part of the body. The treatment, when the *body* escapes, and the head remains in the uterus, will be considered under another head. In many of these cases, we cannot tell whether the edges of the laceration were contracted, so as to exclude free access to the peritoneal cavity or not: but if it appears that section of the abdominal parietes was more successful in *all* the cases of escape of the fœtus, of course it must be the most successful practice in the cases in which access to the peritoneal cavity is cut off by the contractions of the womb.

Escape of the Head with the whole or part of the Fœtus.

1. DURING PREGNANCY.—*Saved.*—Delivered by

Gastrotomy.—Case I.

Undelivered.—Cases II., IV., V., VI., X. Case III. delivered of one, and one allowed to remain.

Lost.—Abandoned.—Cases XIII., XV., XVI., XVII., XVIII., XIX., XXI., XXII., XXIII., XXIV., XXV., XXVII., XXVIII., XXX., XXXIV., XXXVII.

2. DURING PARTURITION.—*Saved.*—Delivered by

Gastrotomy.—Cases XLIX., XLIX. (*a*), L., LXI., LXII., LXXIX., LXXXI., LXXXII., LXXXIII., LXXXIV., LXXXV., XCIV.

Undelivered.—Cases LII., LXIV., LXX., LXXI. (*a*), LXXII., LXXIII., LXXIV., LXXV., LXXVI., CXI., CXVII., CCLXV.

Turning.—Cases LXVII., LXVIII., LXXX., XCVII., CII., CCLXXXIV., CCXCI.

Turning and Crotchet.—Case LV., LXIII.

Lost.—Delivered by

Gastrotomy.—Cases CXXXIX., CCXXI., CCXXXV., CCCII.

Undelivered.—Cases XXV., XXXVII., CXXX., CXXXVII., CLXVII., CLXVIII., CLXIX., CLXX., CLXXXIII., CXCI., CCIV., CCXI., CCXVII., CCXXX., CCLVI., CCLVII., CCLX., CCXLIII., CCLXVIII., CCLXIX., CCLXXI., CCLXXIII., CCXCIX.

Version.—Cases XXXV., CXL., CXLVII., CLXXVI., CCIX., CCXXV., CCXXXVIII., CCLI., CCLV., CCLXIV., CCLXXVIII., CCLXXIX., CCLXXXII., CCLXXXIII.

Perforation.—Case CLXXXVIII. "*Blunt Hook.*"—Case CXLI. *Artificial dilatation and version.*—Cases CCIII., CCXXIII. *Unsuccessful attempts at delivery.*—Cases CCVI., CCVIII. *Spontaneous evolution and descent of the hips.*—Case CCXLIX.

Total.—1. *During Pregnancy.*

Gastrotomy.—Saved 1—lost 0.

Abandoned.—Saved 6—lost 16.

2. *During Parturition.*

Gastrotomy.—Saved 12—lost 4.

Abandoned.—Saved 12—lost 23.

Turning, &c.—Saved 9—lost 21.

Next let us consider the cases in which there was diminution of the diameters of the pelvis from distortion, or contraction, exostosis, &c. We embrace all cases of diminution, for if it exist to a sufficient degree to be perceptible on an examination, unless we are certain that the head is proportionately small, we never know how much difficulty we may encounter in delivery. Here we reject all cases occurring before the full time, since even a contracted pelvis may afford ample room for an immature fœtus.

Contracted Pelvis.

Saved.—Delivered by

Gastrotomy.—Cases LVIII., LXXXVIII., XCIV., CIII., CX., *after version.*

Version.—Cases XLII., XCII., CII., CCC.

Version and Perforation.—Cases LVI., XCIX.

Perforation.—Cases XCI., XCIII., XCIV.

Version—head assisted by the lever after failure of forceps.—Case XLI.

Version—head assisted by forceps.—Case LXXXIX.

Version—head assisted by crotchet.—Case LXIII.

Version—head assisted by lever.—Case XC.

Forceps.—Case XLVI.

Lost.—Delivered by

Gastrotomy.—Cases CLI., CCXXI., CCLII.

Undelivered.—Cases CXXXVII., CXXXVIII., CXLVI., CCXVII., CCLXIII., CCXCIV. *Forceps applied and removed.*—Cases CXIX. and CCXXVIII. *Apparently undelivered.*—Cases CCXXXIV., CCLXXII., *version and delivery of all but the head.*—Case CCLXXII.

Version.—Cases CXXXVI., CCXIX. *Cases* CCXVIII., CCXLVIII., *after attempted perforation.*

Version and Perforation.—Cases CXVIII., CLXIX., CXCVII., CCXXVII., CCVII., *head aided by forceps before perforation.*

Perforation.—Cases CXXV., CXXVI., CXXVIII., CL., CLIII., CLXV., CLXVI., CLXXXIX., CLXXII., CLXXVII., CXCII., CC., CCXVI., CCXXVI., CCXXXI. Case CLXXV., *chest opened.*

Forceps followed by Perforation.—Cases CXXIV., CCXV. Case CXCIV., disproportion. In Case CCXXV., probably contraction, delivered by *version*, assisted by the *blunt-hook.*

"*Blunt hook.*"—Case CXLI.

Total.—Gastrotomy.—Saved 5—lost 3.
Undelivered.—Saved 0—lost 11.
Perforation.—Saved 3—lost 16.
Other methods.—Saved 11—lost 14.
Total of both cases.
Gastrotomy.—Saved 18—lost 7.
Undelivered.—Saved 18—lost 50.
Other modes of delivery.—Saved 23—lost 51.

Several of the cases of *gastrotomy* we have found merely alluded to, in the works which we have quoted as our authority, and we have not been able to consult all the original accounts. It was, therefore, impossible to determine whether they were performed for escape into the abdomen, or because of contraction of the pelvis; in two or three of the instances in which the pelvis was contracted, the fœtus had also escaped. Inasmuch, however, as authors have in general recommended a resort to this operation, only when a delivery *per vias naturales* should be impossible, it is most probable that they were performed chiefly, if not entirely, for escape into the abdomen with firm contraction of the edges of the uterus, or else in cases of so great a degree of contraction of the pelvis as to demand Cæsarean section. But whether performed for one or the other, is of no consequence. This will appear from the fact that gastrotomy depends for its success in no respect upon the capacity of the pelvis to allow a child to pass, or whether the rent of the uterus is permanently closed, or will still admit the hand.

Cases of gastrotomy in which the pelvis was contracted, have, however, been placed with the rest of that class, whether the operation was performed in consequence of the contraction or otherwise, in order to compare the results of different modes of delivery.

We wish to be distinctly understood, that we do not consider that our statistics afford us the actual *proportion* of recoveries and deaths, after the respective modes of treatment. Few are ambitious to publish unsuccessful cases, and hence the reason of so large a proportion of successful terminations that our series exhibits. But we see no reason why such apparent success should follow gastrotomy, were not its results in reality, in the main, more satisfactory than that of the other modes of delivery. Gastrotomy is an operation that comparatively few of general practitioners have the nerve to undertake, amid the exciting scenes by which one is surrounded, on the occurrence of rupture of the womb. A degree of *éclat* attaches to its performance, even if it be unsuccessful—far more than to the application of the forceps, to perforation, or to version. There can be no causes tending to *suppress* the publication of unsuccessful cases of gastrotomy, which do not apply, in an equal and even greater degree, to the other modes specified.

We might even claim for these results a degree of the value attached to statistics of Cæsarean section, which were obtained from similar sources, that is, published cases. They will not command an equal degree of confidence with those of Churchill upon hysterotomy, because less numerous than the reported cases of that operation. It is well known, however, that there are numerous cases of hysterotomy that have never been published; the errors to which ours are liable are common to all such investigations.

But it is not with the view of ascertaining the actual success of the different modes of treatment that these cases have been collected. Our object is not to ascertain the absolute mortality of rupture succeeded by gastrotomy, or of rupture succeeded by perforation or by version, or of rupture abandoned to the powers of nature. If our cases should show two recoveries after perforation, and twenty deaths, we do not infer that two out of twenty delivered in this way will be saved, nor do we suppose that of every twenty-four cases delivered by gastrotomy, seventeen will generally recover, but we do attach great value to the fact, that they exhibit a *greater degree of success* after gastrotomy than after any other operation; and we insist that, however much the degree of success of both it and the other modes may be modified in actual practice, their *relative* success, for the reasons that we have given, will continue about the same.

If the success of gastrotomy, then, be so much greater than that of other modes of delivery, it must be in consequence of its more fully meeting the indications that such cases present, than either of the other modes.

Many of our cases of *artificial delivery* do not state, with precision, the time occupied during delivery, and, in many, there is a neglect to state whether it was accomplished with ease to the patient or not. The varying expressions employed to state these and other facts, render it difficult to classify them. Taking all those delivered by art, we have grouped together those in which the delivery appears to have been achieved with ease, or, at any rate, without any marked difficulty, and those in another class, in which there appears to have been different degree of difficulty. Under the term difficulty, we include length of time occupied, and hinderances afforded by disproportions between the fœtus and the passages, from the numerous causes which may produce them.

I. *Recoveries after Artificial Delivery.*

Delivery accomplished with ease.—Cases I., VIII., XLII., XLIV., XLV., XLVII., XLIX., L., LI., LIII., LVIII., LXI., LXII., LXVIII., LXIX., LXXIX., LXXX., LXXXI., LXXXII., LXXVIII., LXXXIV., LXXXV., LXXXVIII., LXXXIX., XCIV., XCVIII., C., CIII., CVI., CXVI., CCLXV., CCLXXXIV., CCXCI., CCC.

Delivery accomplished with more or less difficulty.—Cases XLI., XLIII., XLVI., XLVII., LV., LVI., LVII., LX., LXVIII., XC., XCI., XCIII., CI., CX., CXII.

II. *Deaths after Artificial Delivery.*

Delivery accomplished with ease.—Cases CXCV., CCV., CCXXI., CCXXVII., CXXIII., in CXXVII., CXXVIII., XXIX., (apparently no difficulty,) CXLIII., CLI., CLXVII., CCXXXV., CCXXXVII., CCXXXVIII., CCLII., CCLXXIX., CCLXXX., CCXXXIII., CCXCVII., CCC., CCCI.

Delivery accomplished with more or less difficulty.—Cases CXVIII., CXXII., CXXIV., CXXV., CXXXVI., CLIII., CLVI., CLXV., CLXIX., CLXXXVII., CLXXXVIII., CLXXXIX., CCLI., CLXXIV., CLXXV., CLXXIX., CXCIV., CXCVII., CC., CCIII., CCVII., CCXII., CCXIII., CCXIV., CCXV., CCXVIII., CCXIX., CCXXIII., CCXXIV., CCXXV., CCXXVI., CCXLII., CCXLIX., CCLI., CCXCIII.

Of those *recovering*, then, after artificial delivery, we have *thirty-four* cases in which delivery was accomplished with *ease*, and *fifteen* in which it was effected with more or less *difficulty*.

Of the cases that *died* after artificial delivery, in *twenty-one* cases delivery was easy, in *thirty-five* it was *difficult*.

This statement exhibits, most conclusively, the influence of a speedy and easy delivery on the patient's chance of recovery, by showing the great preponderance of easy deliveries in the cases of those who survive, and of difficult deliveries in those who sink. They show, we think, in the clearest manner, that a delivery accomplished in a short time, and with little comparative shock, places the patient in the most favourable condition for recovery. We have included cases of gastrotomy under the class of easy deliveries, desiring it to be borne in mind that by *easy* we have reference to time occupied, as well as facility of execution; just as *difficult* designates the opposite. In all the cases of gastrotomy in which any allusion is made to the subject, delivery was accomplished very rapidly, and with little suffering.

The dangers to which a woman is exposed from rupture, are, 1st, the direct shock of the accident; 2d, hemorrhage; 3d, undue action of the reparative processes. The risk attending the two first must be materially affected by the mode of delivery. That patient will stand the best chance of recovery, other things being equal, who is delivered most promptly, in the shortest time, with the least degree of suffering, and the least additional injury to the structures concerned.

These indications gastrotomy unquestionably fulfills, where the fœtus cannot be readily withdrawn from the abdomen through the rent, and where there is such a disproportion between the head and the fœtus, as seriously to embarrass delivery, and hence, undoubtedly, its superior success to that of other operations.

In determining upon an operation in any given case, regard must be had to its capabilities for meeting these absolutely essential indications. It is evident that no one mode can be applicable to all cases. Let us, therefore, inquire into the particular conditions for which the different modes of delivery appear to be intended.

It is not to be expected that cases reported in the imperfect manner of many of our series, will furnish sufficiently numerous instances of *every* variety of condition met with in delivery, to exemplify the comparative value of different modes under each. In many, the conditions for which the various operations were undertaken, are not stated. Of two of these conditions we have exhibited statistics; in the others we must be guided by the general rule above stated, which should in all cases control the choice of any mode.

THE HEAD WITHIN REACH, THE PELVIS BEING AMPLE, OR PRESUMED SO.

1. *Saved.*—Delivered by

Perforation.—Case XLV.

Perforation, after failure with forceps.—Case LX.

Version.—Cases LIV., CXII.

Os incised, version and perforation.—Case LVII.

Forceps.—Cases LIII., LXIX., XCVIII., CXVI., CCXCVI.

Lever.—Case CVI.

Lost.

Undelivered.—Cases CXX., CXXI., CXCIII., CCI., CCII., CCXXVIII., CCXXXIX., CCXLV., CCLIII., CCLIX.

Undelivered, after attempts with forceps.—Cases CXLII., CCXXIV., CCLXVII.

Version.—Cases CXLIII., CXCV., CCXIII., CCXXXVI., CCXXXVII., CCXCVII.

Perforation.—Cases CXXIII., CLIII., CLV., CLX., CLXI., CLXIII., CLXVII., CLXXI., CLXXIII., CLXXIX., CLXXXII., CCLVIII., CCXCIII.

Perforation after forceps.—Cases CXXII., CLVI., CLXXXVII.
Version after forceps.—Case CLXXIV.
Turning after forceps.—Cases CCXII., CCXXVI.
Forceps.—Cases CLXXXIV., CCXLIV., CCLXXX., CCCI.

1. *When rupture occurs in a patient having a well-formed pelvis, of ample dimensions*, especially if this has been proved by easy previous labours, and the head is judged to be of natural size, the treatment must depend upon the situation of the fœtus. Should it have descended into the pelvic cavity, and be *still found remaining there, if the child* be living, as ascertained by auscultation, it would appear unquestionable that delivery by the forceps should be attempted. Authors have objected to the employment of the forceps, on the ground that attempts to apply that instrument would cause the head to retreat; but by compressing the abdomen, the head can, in many cases, at least, be retained in its place, and our cases furnish instances of successful delivery with this instrument. The life of the child may continue for some time after the accident, provided that the placenta still retains its connections with the womb, though, in general, death of the child follows very early. It is in these cases alone, as we conceive, that the forceps is applicable.

In case the fœtus be known to be dead, the delivery may be much facilitated by lessening the size of the head by evacuating its contents, and in such a condition of things delivery would, without doubt, be effected by this more speedily, and with less suffering to the patient.

2. *Should the fœtus have escaped into the abdomen, the pelvis being ample*, the course to be pursued will depend much upon the condition of the opening through which it escaped.

At this point we remark that lacerations of the upper part of the vagina have been included with those of the uterus, because they are quite generally acknowledged to be of equal fatality, and because that the peritoneal cavity is very frequently laid open. When a lesion of the peritoneum occurs, and the contents of the womb escape into its cavity, the danger is very materially enhanced. We have seen that in a large number of cases the rupture is confined to the cervix, or else runs up into the body of the uterus, or downwards into the vagina, or extends both into the body of the organ and into the vagina. Whenever it is confined to the upper part of the vagina, the fœtus may escape, in whole or in part, into the cavity of the peritoneum.

Separation of the os, as in Cases CVII., CVIII., CIX., and mere lacerations not involving the peritoneal cavity, seem to be far less serious in their nature. But though ruptures of the uterus and vagina are so similar in their symptoms and results, one circumstance will demand for each a different treatment. This is the fact that the uterine walls being muscular, contract, and consequently close more or less completely the orifice through which the fœtus has escaped. This contraction takes place probably sooner in some cases than in others, and it is evident that upon it depends the continuance of life, which would otherwise soon fail from hemorrhage. However this may be, so soon as it has taken place, the edges of the laceration are drawn together, and a certain amount of force is to be applied to overcome this contraction. The degree of contraction is not equally great in all cases, but in some considerable force is required to overcome it, and the womb embraces the operator's arm so closely, as to seriously embarrass his movements.

This contracted state of the opening cannot be overcome but by a certain degree of violence, the consequence of which must be a risk of increasing the hemorrhage, so as to endanger life, and causing great suffering. To this general condition of contraction after rupture, our cases present but a single exception, in Case CCLXXXIII.

In lacerations of the vagina, the edges of the rent do not thus approximate from contractions of the muscular tissue like that of the womb; the orifice remains patulous. When the rent, therefore, involves the vagina and the cervix, the degree of facility by which the hand may be passed through it, will depend on the relative degree to which the respective parts are implicated—the uterine portion will be more or less closed, while the vaginal is uncontracted. Provided, then, that rupture has taken place in the vagina alone, or has implicated the vagina so far, that notwithstanding the contraction of the portion extending into the cervix, there is still ample room to withdraw the fœtus without forcible dilatation, and in such a case as that of Case CCLXXXVIII., in which the uterus did not contract, with an ample pelvis, delivery would undoubtedly be accomplished more speedily, and with less damage to the maternal structures, by *version* than by any other means. In cases in which the rupture is confined to the uterus, and the edges have contracted, or when, as in Case CII., the os is contracted, it would appear that a different course is indicated, which we will presently consider. This, then, is the *only condition* under which version is to be considered allowable after rupture—a *pelvis, beyond all doubt, ample, a head of moderate dimensions, and the uterus uncontracted, or the rent confined to the vagina.*

We have already mentioned one condition in which *perforation* would best fulfil the indications which an operation should meet—it is where the head is low in the pelvis and the child dead, the pelvis being ample.

3. *Should the head become impacted in the cavity of the pelvis*, or *at the inferior strait*, in consequence of an approximation of the tubera ischii, or an unnatural condition of the coccyx, diminishing the size of the head would undoubtedly, in most cases, permit a speedy and easy delivery, because the body being already considerably advanced, after reduction of the size of the head, the trunk would follow without difficulty. To these cases *perforation* would appear to be particularly applicable.

4. *When contraction exists at the superior strait*, we know not the amount of difficulty that may be experienced in delivery *per vias naturales.* Even with the assistance of uterine pains, and with even a moderate degree of contraction of the brim, we often find difficulty, when no rupture exists, in delivering the fœtus. When, however, uterine contractions have ceased, the difficulty, as all must have found, is materially enhanced. Uterine contractions appear to direct the shoulders and body of the fœtus into the diameters most favourable to delivery; but when these are absent, the bis-acromial diameter of the shoulders may as readily engage the short diameters of the pelvis as any others. In such a case, great embarrassment has been known to arise from the arrest of the shoulders; this is, under such circumstances, exceedingly difficult, if not impossible of reduction until after decapitation. This happened once in a case in which we were concerned.

When the uterus is in action, we know that delivery by the perforator and crotchet is often exceedingly tedious and protracted. Every one acquainted with operative midwifery knows, that not unfrequently one or even two hours, and sometimes three or four hours are employed in perforating the head, in removing, it may be, portions of the cranial bones, and in drawing the mutilated body by force through the contracted passage. Is it not evident that by thus subjecting the unfortunate patient to a prolonged operation, she is exposed to numerous hazards? The pain produced by the necessary manipulations, the fatigue and even exhaustion, can be but poorly borne by one who has already suffered from a terrible injury. If, then, previous to perforation behind the ear, and the removal of the contents of the cranium, the patient has been subjected to the operation of version, in which the hand has been passed into the abdomen, and after groping about among the intestines, at length has succeeded in grasping a lower extremity, by which the fœtus has been dragged through the rent into the pelvis, we may easily see that the chances of a successful termination must be very materially diminished. It is well known that perforation of the skull behind the ear, especially when the head is at the brim of the pelvis, is an operation of very considerable difficulty; and yet the most of our authors recommend version in cases of rupture, and escape of the fœtus, and perforations behind the ear, even though contraction of the pelvis exists.

5. Two questions then arise—first, have we any operation which, in case of escape through a rupture of the uterus, followed, as it must in almost every case be, by a contraction of the edges, will expose the patient to less risk than the forcible dilatation of the rent, and the delivery through the natural passages after version?

And, secondly, have we, when a contraction of the brim of the pelvis exists from deformity or from morbid growths, which would render delivery tedious and difficult, any mode of delivery which shall not only be speedy, but which shall in the main give a better chance of success than embryotomy?

In the first instance, authors have cautioned us against any forcible dilatation of the orifices by which the fœtus escaped, on account of the great hazard, and the great difficulty, if not impossibility, of succeeding. The same is true when rupture has taken place, when the os is only partially dilated, and is undilatable, or when it has contracted after the rupture. Two courses have been proposed in the first condition—one to abandon the patient to nature, if perchance the fœtus may become enveloped in false membranes, after the manner of an extra-uterine fœtation; the other is gastrotomy.

We have shown, we think, conclusively, that non-interference affords a patient a far inferior chance to any other course that can possibly be proposed. We cannot believe that any one can read the histories of the several cases detailed, in which the patient was abandoned, and compare the success with that following artificial delivery, without being convinced of the superiority of the latter course. It would appear that non-interference could never have received the preference from the high authorities whose opinions we have quoted, had as great a degree of attention been given to this subject, as to many others of which they treat. Giving the advocates of non-interference all they can claim, their success is anything but flattering. We shall find also, by referring to the histories of most of those who eventually recovered, that their existence was for months, and in some cases for life, one of suffering; and that with a fistulous opening through the abdominal parietes, or between the peritoneal cavity and the vagina or rectum, with the constant passage of the offensive detritus of the putrefied fœtus, existence must have been anything but desirable. There is nothing to induce us to follow this course. Reason and experience are against it. *Gastrotomy*, then, is the only course which we shall be justified in adopting.

The second condition is one that has not so generally engaged the attention of obstetric authors. After observations made it clear that delivery, in all cases, gave a better chance of recovery than non-interference, it would seem to have been taken for granted, that delivery should be attempted *per vias naturales*, were the woman in a condition to endure any operation, no matter what difficulties might be in the way. It would appear from reading the histories of several, that, inasmuch as these are desperate cases, any amount of force and violence was to be considered justifiable, provided it tended to the end—delivery. Thus we read of repeated attempts at application of forceps during a whole afternoon, by which the head was crushed in—of attempted deliveries by the vectis, and forceps and turning, one being tried after the other failed; of attempts to drag by forceps a fœtus through a pelvis too small to allow a standard fœtal head to pass, &c. &c. Such cases are valuable in truth, as showing what amount of violence the system can suffer, and yet the patient recover; but surely they can be no examples for general practice; our object not being to ascertain how much violence a woman can bear in delivery, and yet recover, but to ascertain in what way she may be delivered with the least real suffering, and with the greatest chance of success.

If, now, in place of tedious delivery after embryotomy, we promptly remove the fœtus by a section of the abdominal parietes, is not the probability of recovery increased?

A prejudice has probably prevailed against the practice of gastrotomy, in consequence of the high mortality of the Cæsarean section compared with that of other operations in surgery, which renders it the last resource in the cases in which it was employed. The laying open the peritoneal cavity, and dividing the parietes of the womb and withdrawing the fœtus, as a *primary* operation, is one of great hazard, but we must bear in mind that when rupture has taken place with complete or partial protrusion of the fœtus, precisely this condition has already been brought about by the accident itself. The peritoneum has been torn, the walls of the uterus divided, and the patient is in the most imminent peril. Considering the magnitude of the accident, and the imminent danger which already hangs above the patient, a simple incision of the abdominal parietes loses much of its relative serious importance. It is evident, that, could she be delivered without suffering, or the risk of the infliction of any injury, her chance of recovery would be far greater than it can be by any means actually in our power; and knowing that if the pelvis be contracted, the suffering, exhaustion and delay must be considerable, if we attempt delivery by the natural passages, do we not place her in a better condition for recovery, by the abdominal section? To our minds this cannot be a matter of doubt.

When we consider that a section of the abdominal walls can be made in a few seconds, and the fœtus removed with its secundines, and the effused fluids in a very short time, can there be a doubt that the shock to the system is less than that produced by an exhausting delivery by any other means? Complete contraction of the uterus may be thus secured, with perfect security against the strangulation of the smallest knuckle of intestine in the rent, entire suppression of hemorrhage, and the abdomen freed from coagula and fluids, which might, by their presence or decomposition, induce irritation. In every instance in which the condition of the patient immediately after gastrotomy is recorded, she has expressed herself greatly relieved by the operation, and in more than one instance, stated that her sufferings were less than in previous deliveries. From familiarity with the pains attending artificial delivery, as well as with those of labour in general, the practitioner becomes insensibly disposed to underrate the actual suffering endured by the patient; but it may well be questioned, if the suffering produced by an incision through the abdominal parietes, will compare with that produced by the operation of *version*. Gastrotomy at once gives nature the best opportunity to rally, and set about the reparative process; by protracted delivery after perforation, or version followed by perforation, suffering is greatly prolonged, and the last remaining strength is, alas! too often wasted in endeavours to endure it. But the incision of the abdomen furnishes another lesion for nature to heal; version performed under the circumstances in which we have above considered it to be indicated, inflicts *only* pain, hence its peculiar adaptation to cases in which the pelvis is ample, the edges of the laceration and the os uteri uncontracted, and the fœtus in the peritoneal cavity. In the case of a contracted pelvis, the choice is between two means—both productive of injury, but the one to a less degree than the other. Our cases furnish instances of obstruction to delivery from exostoses, fibrous tumours, bands in the vagina, and undilated os uteri. The success of the attempts made to dilate the os, and to divide resisting bands, is by no means such as to invite a repetition. In short, *as a general rule, from whatever cause we might be led to anticipate a protracted and difficult delivery by the natural passages, gastrotomy will afford the best chance of recovery.* The only exception is that of impaction of the head in the cavity, or at the inferior strait, where perforation is clearly indicated.

6. Other conditions than those we have considered, may exist, and embarrass us. For example, there may be but *a partial expulsion of the child* into the cavity of the abdomen, the head either remaining in the womb, and the body being without it, or the head in the peritoneal cavity, and the body in the uterus, the edges of the laceration in either case being contracted about the neck, *the pelvis being ample.* Our cases furnish no light on the course to be preferred here. By any mode, the womb is to be subjected to additional injury in delivery, from forcible dilatation of the rent. The diameter of the head being considerably greater than that of the shoulders; if the head were in the abdomen, and the trunk in the womb, the probable injury to the *womb* would be greater, from traction upon the trunk, than were the abdomen laid open, and the shoulders and trunk brought through the rent; but here would be the additional risk of the incision.

In a *contracted* pelvis, the practice, we consider, should be the same, whether the fœtus were wholly or partially in the womb.

7. *Disproportion* may exist between the pelvis and the head, from the size and degree of ossification of the latter, or from a hydrocephalus, and at the same time the pelvis be of standard dimensions. Where perforation can diminish the size of the head, so that it shall no longer be disproportionate to the pelvis, the case is reduced, in all respects, to that of rupture occurring, with an ample pelvis, and should be treated upon the same principles.

Upon the intelligent judgment of the practitioner, depends, in an important degree, the prospect of the unfortunate patient's recovery. As we have remarked, it is the habit of many men of extensive experience, to regard it as a matter of little, if any importance, what is done, indeed, whether anything at all be done, for the delivery of the patient. "Why," said one not long since, "inquire about the different modes of delivery, when they die under any mode of treatment?" Do not the histories of our cases show that the woman has a chance, and a chance which should be seized upon with the tenacity of desperation, and not lost from irresolution, or wantonly thrown away? We have proved that the ease and rapidity of delivery materially affect the result; this shows that there rests upon the practitioner a weighty responsibility of determining the most proper mode of delivery, as well as the duty of faithfully and energetically carrying out the proposed means of relief. When we read of the long-continued violence to which the patients in some of our cases were subjected, can we doubt that the selection of means more applicable to the case, might have made the difference of life and death? The mode of delivery, then, is deserving of careful consideration.

We have already remarked that we have not the means of ascertaining the mortality of this accident on a large scale; undoubtedly, there are not unfrequently instances of recovery from it, when the accident was unsuspected. Burns reports a case in which there were many of the symptoms of rupture, followed by recovery. On the other hand, many doubtless die, in whom it was unsuspected. Whatever the actual mortality be, we have great encouragement to persevere in the employment of a course calculated to promote recovery. Hamilton, in his *Practical Observations*, states the interesting fact, that, in the only instance of recovery that he met with, the symptoms seemed more adverse than in any one of the fatal cases, with the exception of those where the patients were moribund when his assistance was procured; and our cases present many instances of recovery, where the chances must be regarded as having been very small. Such cases are sufficient to satisfy one of the immense restorative capabilities which the system sometimes possesses. Baudelocque cites an instance in which the womb was torn open by the horn of a bull, and the woman recovered. The *Lond. Med. Gaz.*, Oct. 1846, presents the account of a similar recovery from rupture of the womb by a bullock's horn. In the April number of this Journal, for 1847, is quoted a case of recovery after perforation of the abdomen and uterus by a pitch-fork. These, and numerous other cases which we could cite, are sufficient to encourage us not to abandon our patient, howsoever great the extremity may be. They teach us the propriety of attempting delivery in every case, when the patient is not actually in *articulo mortis.* If she be actually dying, humanity would dictate that she should be left to breathe her last undisturbed, even though the reputation of the practitioner should suffer from her dying undelivered; for this would appear to form a proper exception to what is usually regarded a "golden rule" in midwifery. We shall ordinarily, however, be obliged to attempt delivery, where only partial reaction has taken place. No one would recommend the removal of the fœtus when the woman is in a state of actual collapse, but the state of depression is in a great degree kept up by the presence of the fœtus, and of the effused fluids in the cavity of the abdomen, and will probably continue until they are removed. The promptness with which reaction takes place, is seen in a remarkable and an especial manner, in cases delivered by gastrotomy. By this operation, the great source of depression of the vital powers is at once removed, whereas by the ordinary modes of delivery, not only is an additional shock inflicted, but the opportunity which the system requires for rallying, is long delayed; and herein consists the great advantage of this operation over any other, when any circumstances would render delivery by the natural passages difficult.

We heartily concur with the opinion expressed by Dr. Meigs in the remarks appended to Case CCXCIII., that, when promptly performed, gastrotomy offers a chance not greatly inferior to that of the Cæsarean section. One circumstance, however, will tend to diminish the chances of a favourable result, even though gastrotomy were performed at the instant of rupture, and that is the frequency of a diseased condition of the uterus in general, or of its walls, at the place of rupture.

8. *A question arises, within how long a time after rupture is it proper to attempt artificial delivery?*—The longest period that elapsed, which our cases furnish, was eight days, in the woman delivered by Mad. Lachapelle, as quoted by Jacquemier. Although in this instance the woman recovered, it can scarcely be considered as a course to be generally recommended. When patients have recovered with the fœtus in the abdomen, it has been either from the escape of the fragments after putrefaction, or from the formation of false membranes about it. Should the formation of false membranes have taken place by the organization of the lymph thrown out, a destruction of the newly-formed membranes, by the violent removal of the fœtus, might easily result in serious consequences.[*] But if, on the other hand, putrefaction had taken place, and the patient laboured under fever in consequence, a careful attempt at removal, at even a late period, by the hand, provided the rent freely admitted it, as in Case XIV., or by gastrotomy, as in Cases LXXVIII., CXI., CCLXV., would probably afford her the best chance.

9. *That delivery should be effected as early as possible after rupture has occurred*, must also be an important consideration, though the advantage does not appear so distinctly from a comparison of our cases, as several other points which we have considered.

Thus, in those who *recovered*, the time from rupture to delivery was, as nearly as can be ascertained,

1 hour and less	in 7 cases.	Over 9 hours	in 1 case.
Over 1 hour and less than 2	in 6 cases.	" 12 "	" 2 cases.
" 3 hours	" 3 "	" 15 "	" 1 case.
" 4 "	" 1 case.	" 16 "	" 1 "
" 7 "	" 1 "	" 23 "	" 1 "
" 8 "	" 1 "		

Average—*a small fraction less than* 5 *hours.*

In those who *died*, the time from rupture to delivery was—

1 hour and less	in 13 cases.	Over 12 hours	in 4 cases.
Over 1 hour and less than 2	in 5 cases.	" 14 "	" 1 case.
" 3 hours	" 4 "	" 17 "	" 1 "
" 4 "	" 3 "	" 19 "	" 1 "
" 5 "	" 3 "	" 21 "	" 1 "
" 6 "	" 2 "	" 24 "	" 1 "
" 8 "	" 2 "		

Average—*a fraction over* 5 *hours.*

In cases of partial rupture, the rent may increase, if the uterine contractions continue, and the child consequently escape from the womb into the peritoneal cavity, which might have been prevented by early delivery, as in Case CCLI.

10. In *sixteen* instances, the *intestines* were found to have *prolapsed* through the rent in the uterus. In Case XLVIII., "nearly four feet of

intestines protruded," and in Case CCV., it became strangulated from not having been reduced.

11. *Character of the labour in which the rupture occurred.*—The labours may be classed as nearly correctly as possible, under the following heads:—

Of those *saved,* labour was—		Of those *lost,* labour was—	
Moderate in	4 cases,	Feeble in	10 cases.
Very severe in	3 "	Moderate in	24 "
Strong in	6 "	Very severe in	26 "
Tedious in	2 "	Strong in	17 "
		Tedious in	9 "

We see that rupture is by no means confined to cases of severe and protracted labour, as is ordinarily supposed; the pains having been *feeble* or *moderate* in 38 cases, and *severe* in 63, if we include the *tedious* under this head.

12. *Presentations.*—There were 16 presentations of the *shoulder, arm or side;* 2 of the *breech. Three* of these were *saved* and *twelve* were *lost.* The remainder were of the *head*, or were not particularized.

13. In Cases XLIX., XLIX. (*a*), the patient was subjected to gastrotomy twice, and recovered, and in Cases CX., CCLII., to gastrotomy and to Cæsarean section successfully.

14. In Cases VIII., XXXIX., XLV., XLVIII., XLIX., LXVII., LXVIII., LXXIII., LXXXII., LXXXIII., XC., XCII., XCVII., CX., CXIV., the patients were *subsequently delivered of other children.*

15. In Cases XXVI., XLIX. (*a*), LXII., LXXIX., LXXXIII., LXXXVIII., XCVIII., CXIII., CXVI., CXXXII., CXLIV., CCXCV., CCXCVI., CCXCVII., the patient was delivered of a *living child.*

In Cases XLIX. (*a*), LXII., LXXIX., LXXXIII., LXXXVIII., the mother saved, and child born alive by *gastrotomy.*

In Cases XCVIII., CXVI., CCXCVI., the mother saved, and child born alive by *forceps.*

In Cases CCXCV., CCC., the mother saved and child born alive by *version.*

DELIVERED BY NATURAL EFFORT.

Saved.—Cases XXXIX., XL., XCVI,—Case XLIII., *assisted by traction.* Cases CVII., CVIII., CIX., CXIII., CXIV., *os torn off or lacerated.*

Lost.—Cases CXXVII., CXXXII., CLVII., CLVIII., CLIX., CCXLI., CCXLVI., CCL., CCXCVIII.

Does not the fact, that nearly half of the instances in which both mother and child were saved, were those in which gastrotomy was performed, while the proportion of the whole number of cases of gastrotomy in our series is very small compared with that of natural deliveries, and other modes of artificial delivery, furnish a strong additional evidence of the great advantages which we may derive from gastrotomy? Dr. Lee's statement, then, that "the child is already dead," requires qualification.

16. When the death of the mother takes place, and the pulsations of the fœtal heart indicate that it still continues to exist, the choice of a mode of delivery must regard the interest of the child only. However trying to the feelings of the practitioner such a duty might be, there can be no doubt that an incision through the abdomen, made at once after it is established beyond doubt that the mother has ceased to live, affords the child a far better chance than any other mode of removal. It is uncertain how long

the fœtus may survive the death of the mother. In the *London Lancet* for December, 1827, p. 425, Mr. Green relates a case in which he removed a living fœtus from the abdomen of the mother *thirteen minutes* after her last respiration; and Mr. Dawson, in the same journal for September, 1837, reports a case in which the fœtus was found alive *fifteen minutes* after the death of the mother.

XII. *Treatment after Delivery.*—No note was made of the treatment of our cases after delivery. It is evident that the result may, in no small degree, be influenced by the manner in which the after treatment is conducted. Dr. Collins remarks, that "early and active means of counteracting the dangerous and sudden inflammation that sets in in all cases of this kind, are a matter of the utmost importance." He insists on the advantage of an early and free evacuation of the bowels, though sometimes the most drastic purgatives fail to move them, until the approach of death brings on diarrhœa. In the two cases that recovered, the bowels moved easily; in the remainder, there was excessive torpidity of the intestines. Dr. Murphy found, in almost all cases, the bowels were remarkably obstinate, and he could procure no feculent stools, until the gums had been touched by mercury. Symptoms of peritonitis, in the practice of both these gentlemen, were met by local depletions, warm baths, fomentations, and mercury in such doses as to induce its constitutional effects as early as possible. In one of Dr. Channing's cases, the treatment was mainly resolved into "such a use of opium as would partially prevent pain, and keep the bowels quiet, even for days; and to such a use of calomel as would secure alterative effects, and limit inflammation."

It would appear from the results of several cases whose histories are at present within our immediate reach, that the course from which we might reasonably expect the highest degree of success, is the following. Immediately after delivery an opiate should be given, and even alcoholic stimulants, if required. A prominent object should then be, to evacuate the bowels before inflammation comes. To this end, an active cathartic, as of calomel and jalap, should be exhibited, followed by enemata or castor oil, if required. The patient should be put upon an active mercurial course, and as soon as the bowels are moved, opiates should be administered in quantities sufficient to restrain their action for some days, or while the reparative process is going on, inasmuch as the recent adhesions might be readily broken up by the peristaltic movement of the intestines. Excessive inflammation should also be kept down by the abundant use of leeches, and continued application of fomentations to the abdomen; and evacuation of the bladder should be secured, if necessary, by the catheter. The continued use of opium to secure rest of the intestines, was suggested to Dr. Channing by the analogy of its employment in cases of perforation in typhoid fever. To prevent *psoas abscess*, which is a very serious complication, Dr. Collins inquires, would elevating the patient's shoulders, so as to facilitate the escape of the discharges from the uterus, diminish the liability of its recurrence?

In conclusion, though the value which we attach to the statistics furnished by our cases, has probably been perceived by the reader, we would, nevertheless, repeat, that we do not consider them alone by themselves, as of controlling authority. To merit this, a series of careful and minute observations should be made of a large number of cases of ruptured womb, stating every incident with a particularity, which shall leave no essential question unanswered. Generalizations drawn from these would be authoritative. Such reports the profession have a right to expect from those in whose practice they occur. Any attentive observer is capable of watching symptoms preceding, attendant upon, and consequent to rupture—to note the apparent effect of the course of treatment pursued, and all the particulars as to age and condition of the patient. In the examination of fatal cases, however, some familiarity with the appearances of diseased structure, as well as of the healthy tissues, is necessary, in order to appreciate slight departures from a healthy state.

But from the character of the reports of a majority of our cases, it is apparent, that the inferences they yield cannot be trusted, excepting so far as they correspond with well established principles of surgical practice. Our object has been to show that they do correspond with such principles; and the results are, in every instance, just what we should have anticipated, reasoning from such general principles alone.

[*Errata to first part of this article in the January number.*

Page 115, for Case XLIX. (*a*), read *Cases XLIX. and XLIX.* (*a*).

Page 121, second line from top, for see Case CCLI., read *see Case CCLII.*

Page 135, seventeenth line from bottom, for Case CXIII. continued, read *Case CX. continued.*

Case CCLXV. should have been placed among the recoveries.]

REVIEWS.

Art. XIII.—*First and Second Reports of the Commissioners for Inquiring into the State of Large Towns and Populous Districts.* Vol. iii., pp. 682, 298, 380, folio.—London.

Unhealthiness of Towns—its Causes and Remedies. Being a Lecture delivered in the Mechanics' Institute, at Plymouth, by **Viscount Ebrington**, M. P.: p. 48. London: Charles Knight & Co., 1846.

Unhealthiness of Towns—its Causes and Remedies. Being a Lecture delivered at Crosby Hall, London. By **William Augustus Guy**, M. B. 1845.

Report of the Committee of the Members of the Health of Towns Association on Lord Lincoln's Sewerage, Drainage, &c., Bill: p. 122. London: Charles Knight, 1846.

Report of the Committee on the Expediency of Providing Better Tenements for the Poor, p. 36. Boston, 1846.

Life is by no means a constant quantity. It varies both in its fulness, power and intensity, and in its duration. These are no new discoveries. They have been known to the world from its earliest period. Although the natural term of human existence on earth seems to be fixed at three score and ten, yet there are comparatively few that reach it. And it seems to be rather the limit which the favoured few may reach, than the period which all may expect to fulfil. From the first breath to the greatest age, there is an incessant but varying uncertainty of life; and no child, youth, or man, is secure of his earthly being. Sickness hovers over man in all his stages, and death comes at any period; so that the average duration of life in any country or class of men is very materially reduced, and rarely rises much beyond half the allotted period.

Sickness and early death seem to be looked upon not only as the common, but necessary, lot of humanity, and as an inherent condition of our earthly existence, growing, by the order of nature, out of our organization, or inseparable from the earth we inhabit, or from the atmosphere we breathe. Taking with life these conditions of sickness, weakness, and uncertainty of tenure, and considering these as arising from causes which are established in the creation of man and the world, it has hardly been a question, whether the causes might not be removed, and their evil consequences avoided. Until the leopard could change his spots, and the Ethiopian his skin, man would not think to change this sad condition of his creation, and escape his liability to disease and early death; and, therefore, although the world has devoted sufficient attention to the healing of diseases, it has paid very little regard to their prevention.

Yet, notwithstanding it was firmly believed that disease and death at uncertain periods are the common and inevitable lot, it has occurred to some, that these evils were unequally distributed, that among some people and in some localities, sickness was much more prevalent, and childhood and youth sank much more frequently than in other localities, and among other people. Some have observed, that many of the poor were peculiarly afflicted with diseases, and consequently their poverty came upon and remained with them. It has been generally supposed, that their deficiency of health was the source of their deficiency of property; and not that their want of means of living was the cause of their want of physical strength and comfort.

For a long time, these facts have been noticed by a few philanthropists, who, some years ago, began to call public attention to the great prevalence of fever in the districts inhabited principally by the poor. They suggested farther inquiry into the condition of those districts, in order to learn whether there was any difference between the localities, the streets, the houses, or the manner of life of those people where diseases prevailed more, and of those who were comparatively exempted from them.

It then became a question whether the fevers and other fatal diseases, which ravaged more fearfully in some places and among some classes than others, might not be owing to removable causes. Certainly as there was a wide difference between the external conditions and circumstances of the afflicted and the exempted, it was reasonable to ask, whether this outward difference might not be lessened and the diseases thereby diminished.

In the year 1838, the Poor Laws Commissioners of England presented, among matters which had been brought to their official observation, some reports which they had received from Drs. Arnott and James Philips, Ray, and J. Southwood Smith, on the causes of fever existing in London, and also on the prevalence and fatality of disease among the poor in some of the districts of the metropolis. These reports were the record of the matters that these men had seen in course of their professional duty, and of what they had discovered, by private and personal inquiry.

In the next year, Dr. Smith made another report on the prevalence of fever in twenty metropolitan unions and parishes, during the year ending in March 1838.

These inquiries were still farther pursued by a committee of the House of Commons in the year 1840, and the result of their investigation confirmed the statements of the committee of Poor Laws Commissioners previously made.

In the same year, the ministry, by order of the Queen, directed the Poor Laws Commissioners "to cause inquiry to be made as to the extent to which the causes of disease stated in their fourth annual report to prevail among the labouring classes, both in London and in other parts of England and Wales. And they were furthermore directed to prepare a report of the result of such inquiry, which might be laid before the House of Lords."

The Poor Laws Commissioners delegated the power and responsibility of this whole inquiry to Edwin Chadwick, Esq., their able and indefatigable Secretary, who called to his aid men in various cities, towns and districts of the kingdom.

In 1842, Mr. Chadwick published in one volume his astonishing report on the sanitary condition of the labouring classes, which showed such a state of degradation and wretchedness among the poor of many of the towns and districts, as was not suspected by those who only saw these classes in the streets. Sickness was found not only to be more prevalent, but much more fatal, and life was shown of shorter duration among the poor than among the prosperous classes.

Connected with these ills of the body, there were almost universally found what might be supposed to be causes of disease. The poor lived in narrow streets, in closed courts, and in alleys. They suffered for want of drainage, both of their streets and their houses. They had little or no means of removing their own house and personal offal. They were in want of ventilation, light, and pure water. These streets or courts were often wet and muddy, and being the receptacles of all the filth and waste of their bodies and their houses, often sent forth most offensive emanations, and perhaps the miasmatic cause of disease.

There was discovered a remarkable and very general connection between the prevalence of disease and the condition of the dwellings and of the streets. In some sanitary maps, which were prepared, representing the condition of the districts and the health of the inhabitants, those streets and courts, which are marked as filthy and undrained, are also marked as the places where the cholera prevailed some years ago, and where fever and other epidemic diseases now prevail most abundantly; and it is not less observable, that in these foul and unhealthy districts are the habitations of the poor.

Mr. Chadwick prepared also a supplementary report upon Interment in Towns. This we reviewed in Vol. IX., p. 131, of this Journal, in 1845. To this our readers are again referred for some statements relative to the condition of the labouring poor of England and Wales.

Subsequently a large commission, consisting of thirteen persons, was appointed by her Majesty the Queen "to inquire into the present state of large and populous districts," with reference to the causes of disease, and the best methods of increasing and preserving the health of the inhabitants. They were directed to inquire in regard to the drainage of lands and buildings, the size, condition of dwellings, the supplies of air and of water, and finally what amendment of the laws and usages could be adopted for the improvement of the health and increase of the comfort of the people, and for the convenience and safety of their dwellings.

The men composing this commission were among the ablest in the kingdom. Nobles, and philosophers, and philanthropists were joined together, and lent their aid in the work. The Duke of Buccleuch was at the head of the board, and Lord Lincoln, Dr. Lyon Playfair, Sir George Graham, and Dr. D. B. Reid were among the members. Here were character and talent sufficient to ensure a faithful examination of any subject, however difficult, and to go through the work, however laborious or disgusting. These commissioners were empowered to command the aid of other men, and to make personal examination, either by themselves or by deputy, of the condition of houses, streets, courts, shops, wherever the poor dwelt or worked, or wherever disease might be suspected to originate. They summoned to their aid men who, from their profession, their habits, or taste, were the most competent to give the desired information. For this purpose, physicians in active practice, philanthropists who were in the habit of visiting the poor, engineers who were employed in the survey of streets, superintendents of water-works of various cities, superintendents of streets, of sewers, and of paving, overseers of buildings occupied by the poor, architects and contractors for building drains, water-works, houses, and for paving, were severally examined, and some of them have given reports of great length and interest, in regard to the matters which had come especially under their observation. The first report, in one large folio volume, was presented to her Majesty in June, 1844, and printed in the same year. The second report, in two large folio volumes, was presented to both Houses of Parliament in Feb. 1845, and printed by their order.

The investigation commenced with the condition of the street and house drainage of the metropolitan districts; afterwards the inquiry was extended to fifty of the principal manufacturing and commercial towns of the kingdom, and where the rate of mortality appears to be the highest; "each of these towns was visited by one of the commissioners, who examined, on the spot, the general condition of the towns, and of the most unhealthy districts, and making personal inquiries of the inhabitants."

A circular containing sixty-two questions was sent to responsible and trustworthy persons in each of these cities and towns, and minute and elaborate answers requested to each.

These questions relate to a great many topics, to the position of the town or district, its relation to the neighbouring country, its liability to overflow, the soil, and its capability of drainage, to the state, regulation, and condition of drainage, both of houses and streets, to the supply of privies, and to the prevalence of cess pools.

To the arrangement of sewers, and their condition, form, structure, efficiency of cleansing, and their extent in courts, alleys, &c.

To the work of scavengers, the method of carrying off the dust, waste, offal of houses. Use made of refuse. Authority for cleaning.

Site, structure, size, ventilation, and windows of houses of the poor; number of families in a house; size and condition of rooms, and number of persons in them; state of the air in them; how warmed in winter; cellar dwellings.

Arrangement of streets, wide or narrow, straight or curved, and how paved. Courts, whether closed at one or both ends.

School rooms, site, size, location, and ventilation.

Lodging houses. Public walks—play-grounds. Baths.

Water,—how supplied; what is its character, distribution? What portion of houses do not have it; cost; quantity.

Sanitary condition of the towns; of the worst parts; in parts where the rate of mortality is the highest; where fever or epidemics are most prevalent.

Average duration and amount of sickness in working classes.

Losses of rents and taxes of poor from sickness and want of employment.

Public and private aid given to the poor in unhealthy districts.

To these questions the committee received ready and proper answers from the authorities of the fifty towns to whom they were sent; and the general result of the inquiry is, that none of these cities or towns are perfectly drained and supplied with water, and many of them are very badly drained. In most of them the narrow streets, and the courts, and by-places have no means of under-ground drainage. None is supplied completely with water in all the streets and houses; and many have no other supply than that which is obtained from wells or pumps, or drawn in casks from some neighbouring river or stream; and, in almost every place, the poor are inadequately or expensively supplied with this necessary of life.

All the required information seems to be freely and abundantly given, and in very few instances was there manifested any reluctance to answer the questions. Beside the authorities of the towns and cities, there were many others who voluntarily offered aid. Indeed, there is developed a great, a growing interest in this subject in many of the cities of England.

The Health of Towns Association embraces a large portion of the talent and active benevolence of the kingdom. These of every grade seem to be among its members. The noble and the learned, the philanthropist and the business men are engaged in its plans, and are ready to aid in its objects and its investigations. The Marquis of Normandy is chairman, the Bishops of St. Davids, Oxford, and Norwich, Lords Morpeth, Ebrington, Ashley, and John Manners, Sir Edward B. Lytton, Benjamin D'Israeli, Dr. J. Southwood Smith, and Wm. A. Guy, Sir James Clark, and others of the highest character, are on the committee, which includes a list of more than fifty names of men well known for their station in the government, the church, in literature, and science. These names are a guaranty for the earnestness of their purpose, the magnitude and importance of their undertaking, the greatness and extent of the evils to be removed, and the blessings to be obtained by their co-operation.

The object of this association is stated in their code and regulation, "to diffuse among the people the valuable information elicited by recent inquiries, and the advancement of science, as to the physical and moral evils that result from the present defective sewerage, drainage, supply of water, air, and light, and construction of dwelling houses." "To facilitate legislative enactments and their application, by the diffusion of sanitary information bearing on the several points."

"To encourage the establishment of branch associations, with a view to the local benefit that may thence arise, and a more extended field of usefulness."

This association holds annual meetings in various places, obtains and diffuses information, encourages investigation and plans of improvement, and has printed several reports and addresses upon this subject. Among others, two on the unhealthiness of towns, its causes and remedies, the titles of which we have placed at the head of this article, and one by Mr. R. D. Grainger. Some journals, as the Health of Towns Advocate, in Liverpool, are devoted to this subject, and corroborate the reports of the associations. Even the political journals lend their aid. We find, in the London Times, articles upon the state of the poor, of the low health, and short lives of town population. Others are engaged in this matter. The People's and Howitt's Journals, contain many valuable and instructive articles upon the various evils of the present condition of streets, houses, and people in cities, and the means of removal.

The Journals of the London Statistical Society contain some very elaborate and interesting reports of investigation, made by some of its members, into the social and domestic condition of the poor, their dwellings, health and duration of life.

With this evidence of general interest on this subject, we find no difficulty in believing that the committee of investigation receive every aid and every facility to obtain their desired information.

From the labours of the National Sanitary Commission, of these public associations, and of interested individuals, there has been elicited a mass of information in regard to the poor—to their privations, and sufferings, and their want of health, and waste of life. The veil that wrapt in a mystery the causes of disease has been torn away, and the true reason of the prevalence of fevers and contagious diseases, has been revealed to the world.

"The result of these various inquiries has been the collection of a body of evidence of the highest order, relative both to the extent and intensity of the evils in question, and to the proper legislative remedies; and the publication of this evidence will, in the opinion of your committee, form an era in the history of legislation, there being no other instance known to them in which evils of so much magnitude have been proved to be so generally prevalent; in which the search after efficient and permanent remedies has been attended with a success so unquestionable and so unquestioned; in which the mode of giving practical effect to those remedies has been so satisfactorily shown; and, consequently, in which so much has been done at once to guide the legislature, and to instruct and prepare the public mind for cordial co-operation with it."—*Report of the Committee.*

A bill was introduced into Parliament, intended to remove the existing evils, and to prevent their future occurrence. This bill provides, that the whole of any city or town—both its dense portions, and its scattered suburbs, should, as respects drainage, sewers, supply of water, cleansing, and paving, be placed under our authority; and these several matters, water supply, sewers, streets and paving should be under the control of one and the same board of public officers; that one public inspector overwatch all these matters, which are usually under separate authorities, and guard the public interests; that previous to any water-works, sewers, or drains being established, or streets laid out or paved, the whole area should be surveyed, and plans drawn of the whole, by competent engineers; and thus all the works would be arranged and established according to the best plan for their successful operation. The bill further provides that such nuisances, as now affect the general health, should be removed by the public authorities, and that some public officer be authorized to compel the due cleansing of the streets, and courts, and houses, by the removal of the offal and the proper drainage; and lastly, that skilful physicians be appointed in various districts as medical officers, with power to search out and remove the cause of diseases, and particularly of those of the epidemic classes.

This bill, if carried into execution, would, without doubt, very materially diminish the amount of sickness, especially among the poor.

That there were evils of immense magnitude to be removed, and that there was a need of some measure of this kind to remove them, will not be questioned by those who read the testimony that is presented in the various reports, from the most responsible witnesses.

These evils are principally found in the districts occupied by the poor. Those who go through the main thoroughfares of the cities, the streets where the principal business is transacted, where merchants congregate or manufacturers labour, and the more elegant and airy streets, where are the houses of the wealthy or the prosperous, can hardly conceive of the condition of the by-streets, lanes, alleys, and courts,—places concealed generally from public view,—where the poor have their habitations. Dr. Smith speaks "of uncovered sewers, stagnant ditches and ponds, gutters always full of putrefying matter, night-men's yards, and privies, the soil of which lies openly exposed, and is seldom or never removed. It is not possible for any language to convey an adequate conception of the poisonous condition, in which large portions of both these districts always remain, winter and summer, in dry and rainy seasons, from the masses of putrefying matter, which are allowed to accumulate."

Fever is the principal disorder to which the poor are subject in these unhealthy quarters. Some of the districts have, from this circumstance, received the appellation of "fever districts." Some crowded courts, and even some crowded houses, are never free from this disease. Some whole families are attacked by it, and many of them swept away. One physician states, that in one house he attended a family of thirteen persons, of whom twelve had typhus fever, laying on the floor closely together. In another house he attended fourteen patients, who had only two beds for their accommodation, most of them lying on the floor.

Owing to the increasing filthiness of these streets, and impurity of the air, fever has changed its character for the worse. It is now more fatal and less manageable than formerly. Dr. Smith says that this disease was of an inflammatory nature, and often required a treatment by blood-letting, and was aggravated by stimulants, but lately its nature has ceased to be inflammatory, and no treatment that would reduce the energies of the system, is required, but rather stimulants, such as wine, brandy, &c., are needed in most cases that require any treatment.

It is an admitted principle, that sickness is more frequently generated, and mortality increased in towns, where many people are gathered into a small space, and especially in those parts, where they are most densely crowded together, and the amount of disease and death are in very near proportion to the compactness of the crowd.

With the increase of population there must be necessarily an increase of waste matter, both of animal and vegetable origin, either in the houses or in the streets. The rapid decomposition of this refuse, throws out offensive and injurious gases, which produce disease in those who live within their influence.

If this refuse is removed as fast as it is produced, the bad consequences will be diminished, and in many cases nearly prevented. But this requires the most efficient cleansing of the houses and streets by scavengers and by drainage, to remove both the solid and liquid matter.

In consequence of the high price of land in cities, and the cost of building, the poor cannot afford to occupy much ground or large houses. They live in narrow streets and courts, in small houses, and often in crowded rooms. These streets are planned, and dwellings built without regard to the supply of air, or the means of cleansing, or to other requisites of health. They suffer, therefore, from want of both external and internal ventilation.

The respiration of the inhabitants of crowded rooms, and the emanations that are necessarily thrown off from the decomposition of their great quantity of waste matter must corrupt the atmosphere, and increase the necessity of internal ventilation and of cleansing, while the narrowness of their streets and their closed courts, prevent the free circulation of the air, and the frequent, and in some places, the general neglect of cleansing and drainage, leave their grounds and premises in the most filthy and offensive condition.

From the report of Dr. Duncan, we learn that more than two-thirds of the population of the parish of Liverpool, 160,000 out of 223,054 belong to the labouring classes, and that a large portion of these live in courts or alleys. These courts are very narrow, varying from 9 to 15 feet in width, surrounded by houses three stories high. There are 1982 of these courts, of which 629 are closed at both ends, communicating with the outer street only by a narrow passage, doorway, or arch under the houses; 875 are open only at one end, and 498 are open at both ends. There are 10,692 houses and 55,534 inhabitants in these narrow courts.

The houses are built back to back, having no outlet except in front, and surrounded by other houses on three sides. Each house contains three small rooms about 10 or 11 feet square, and in these narrow streets, with no access for fresh air nor egress for the foul air either from the houses or the courts, there cannot be any sufficient ventilation, to support the respiration of the inhabitants.

These courts and houses built back to back, though more common in Liverpool than in most other towns, are yet sufficiently common in other parts of the kingdom. In Birmingham 49,000 of the labouring classes are estimated to reside in such courts.

In Preston one court "is closed at both ends with privies." Other courts and streets are entered by passages under houses, and others are closed at one end by walls. In Nottingham, Mr. Hawksley says, "the houses are chiefly erected side by side and back to back." "One apartment on the plan and three in elevation, stair-cases narrow, dark and unventilated, having pantries and coal places beneath the timbers of the stairs. The area of the living room is generally about 120 feet and its height about eight feet, and the cubic contents after deduction of space occupied by the chimney breast is therefore about 900 feet. In this apartment five persons on an average take their meals, and during the time they may be at home together dwell, thus affording only 180 cubic feet of space to each individual."—(*First Report of Commissioners.*)

Most of the houses of the labouring classes in Nottingham are built either in very narrow streets or alleys, but more frequently in courts, "the entrance to which is through a tunnel 30 to 36 inches wide and 25 to 30 feet long and 3 feet high," and this being the only outlet or inlet, no ventilation is possible, and the light of the sun very nearly excluded.

In all the towns of England as in Liverpool, the labouring classes, the poor, constitute a large proportion of the population, living mostly in narrow streets, in courts, or in cellars.

These reports describe very minutely the condition of the streets and dwellings of the poor, and reveal such a state of things as few, beside those who go to them professionally, suppose to exist in and about the abodes of men. In Liverpool some of the streets in which the poor dwell are 30 and others only 15 feet wide, and the whole average about 24 feet. The 243 streets, inhabited by the labouring population of Liverpool, measure about 20 miles in length.

Many of these districts have no sewer nor other means of carrying off the surface water that rains upon them, or the waste water of the houses, or of removing the waste and offal of their bodies or of the houses.

Only 56 of the streets, which measure about 4 miles, are provided with sewers, in all the others, the drainage, if it exist at all, is upon the surface. The courts are equally unprovided with underground drains; there are hundreds of these in Liverpool that have no sewers. Many of them have open sewers or ditches running through the middle of the street or court. The reporter says, "the sewers are not cleaned except by the rain. The surface of the streets are cleaned by hand, but so carelessly, that in some quarters they are generally filthy, and, at certain seasons, almost impassable." The public authorities do not cleanse the courts and alleys in which carts cannot enter; and these being left to their inhabitants, who are mostly poor, are seldom cleaned at all except by the rains; and one witness says, "I never hail anything with greater delight than I do a violent tempest accompanied with heavy rain, for these are the only scavengers that thousands have had to cleanse away the impurities and the filth in which they live."

Dr. Smith says, "At the back of Ray street, Clerkenwell, London, which is densely populated, a most offensive and open drain, a part of Fleet ditch, passes by the backs of the houses." "I have noticed similar nuisances in Lock's-fields, Bermondsey, and Rotherhithe. In many places the refuse water that has been employed for the purposes of cooking and cleansing the houses, flows through the gulley holes into the kennels in the street, where it frequently remains stationary, producing in warm weather the most oppressive exhalations."

"Punderson's Gardens, London, is a long narrow street, in the centre of which is an open sunk gutter, in which filth of every kind is allowed to accumulate and putrefy. A mud bank on each side commonly keeps the contents of this gutter in their situation, but sometimes, especially in wet weather, the gutter overflows, its contents are poured into neighbouring houses, and the street is rendered impassable. The privies are close upon the foot-path of the street, being separated from it only by a paling of wood. The street is wholly without drainage. Fever constantly breaks out in it and extends from house to house. An open filthy ditch encircles Lambs' Fields, London. This ditch is 8 to 10 feet wide in some parts "where the privies of all the houses of North street open. These privies are completely uncovered, and the soil from them is allowed to accumulate in the open ditch. Nothing can be conceived more disgusting than the appearance of this ditch for 300 or 400 feet; the odour of the effluvia from it is at this moment most offensive." "Lambs' Fields is the fruitful source of fever to the houses which immediately surround it, and to the small streets which branch from it: from several of the streets fever is never absent." In Field Lane, London, the courts are described as low and unventilated, leading to back yards and houses. "These yards are covered with refuse of rotten vegetables, human and other excrement, and other matters in a state of putrefaction. In some, pigs are kept. The cesspools are imperfectly covered, and the privies in a most filthy condition."—(*First Report of Commissioners.*)

In York, the sewerage, which is generally insufficient, is almost wanting in the back courts and streets. Throughout the whole city there is reasonable complaint of want of drainage, and nuisances abound and become very offensive from not being carried away. "The slaughter-houses, pigsties, dung-heaps in the heart of the towns are represented in several instances as pouring their fetid contents into open drains," and give forth very offensive effluvia. Many of the houses are damp for want of drainage.

It is impossible to give more than a general description of the streets in which the poor live in many towns of England, and quote a few of the manifold illustrations from the books before us. Filthy, offensive, and unhealthy as these streets and courts are, the dwellings are no better; if possible, they are worse. Most of these houses being built back to back, and side to side, leave only the front open to the external air. As this front generally opens into a narrow street with but a few feet between it and the opposite house, and as the grounds of the intervening space are often covered with rottenness and filth, and there is no free opening at either end of the courts, they have very little opportunity of receiving pure air. There is then a deficiency of both external and internal ventilation.

These dwellings must not only receive a deficient supply of air, but that little must be tainted; and such a thing as pure air in these filthy streets and courts can hardly be known.

Such a thing as special ventilation of the houses of the poor is seldom or never found; and in consequence of the tax upon windows, there are as few as possible. Not even an aperture can be left in the external wall for ventilation without subjecting the house to an additional window tax. If "it were a hole in the wall to let off the impure air," and "if glazed, the tax-gatherer would most decidedly charge for a window."

The enormous debt of Great Britain may create a seeming necessity for this vigilance of taxation,—which denies to the poor even an outlet for the foul air of his den, and an inlet of fresh air from abroad,—for the payment of its interest. The principal of that debt was created for the support of armies and for the destruction of human life, and the same blight of life follows the interest. For the poor feel compelled to reduce their windows, their inlets of light and of air, to the lowest possible point; and thus wanting sufficiency of air, they suffer in vigour and in health, and, consequently, their life is impaired and ultimately shortened. The weight of the tax defeats its own purpose; for it not only diminishes the number of windows which might otherwise be taxed, but it so diminishes the labourer's strength and his productive power, that he is thereby rendered unable to earn the means of paying other taxes that might have come upon him.

Where the streets or courts are not supplied with sewers or other means of underground drainage, there can be no proper house drainage. It will not be surprising that in Ashton-under-Lyne, there are "3132 houses without proper house drains." All the waste water of these, and of similarly undrained houses, is thus allowed to run into the street, and then either to pass slowly away; or more commonly it remains a stagnant pool, and soaks into the ground, and fills it with its foulness, or it is evaporated from the surface, sending back into the air its own poisonous and corrupting effluvia.

Of course the poor, who can afford no room for yards and the least possible room for streets, cannot afford to live in large houses. The houses in the courts of Liverpool, are generally built three stories in height, besides the cellars, with only one room on each story. These rooms are about ten or eleven feet square. In White Chapel, London, Mr. Liddle, a medical officer, states, that "about twelve feet by eight, would give a fair average size of the floors of the rooms; the ceilings rarely exceed eight feet in height." All the evidence given in these reports, corroborates the statements which we have here made, and show that in other places, as well as in Liverpool, the poor live in very narrow dwellings, and these are often so overcrowded as to be exceedingly disagreeable, as well as unhealthful. A large proportion of the families have each only one room. In the parish of St. George's, Hanover Square, London, 1465 families occupied 2195 rooms, and 2500 beds; 929 families had each one bed, and 638 had each two beds. In some houses of the parish of St. Denis, York, 8 to 11 persons, and in another 6 to 8 slept in one room; and out of 2195 families, more than one quarter, "26 per cent. had only one room for all purposes." In one district of Preston, 2400 persons slept in 352 beds, and among these 336 slept in 34 beds, 140 in 28 beds, 78 in 13 beds, 21 in 3 beds, and 3 in 1 bed. In Liverpool, Mr. Holme states, that, "it is well known that, in houses not exceeding twelve feet square, with one bed room, and a low attic, there are often found 20 to 30 persons huddled together." "I found in one bed-room twenty persons, nearly all adults, and of both sexes." In Greenock "it is not unusual to see 10 or 12 persons sleeping in a room, not as many feet square." In the Sanitary Report on the condition of the Labouring Classes, much evidence is given in regard to the domestic condition of the poor, not only in the city, but in the rural and mining districts.

One room in the northern counties is described. It was eighteen feet long, and fifteen feet wide, its height is not stated. Here were 14 beds, each was intended for two persons, "but they might be made to receive three men each, and in case of need, a boy might lay across at their feet." "There was no opening to let out the foul air, yet 39 to 40 persons might have slept there." "An apartment ten or twelve feet square, more frequently a cellar of the same dimensions, is occupied by twelve or fourteen beings."

The cellars which are inhabited as dwelling places are more crowded, and in a worse condition, as to ventilation and cleanliness, than the rooms above the ground. These are the most abundant in Liverpool, yet they are to be found in other towns. There are in Liverpool, "6294 inhabited cellars containing 20,168 inhabitants." The cellar population constitute about 20 per cent. of the working classes in Liverpool, 11¾ per cent. in Manchester, 8 per cent. in Salford, in Nothingham less than either, and none in Birmingham.

They are generally ten to twelve feet square, and some not six feet high; usually they are provided with a paved floor, but often with no floor but the ground. Many have no windows, and no means of admission of either light or air except the door, the top of which is on a level with the street. Some have another cellar back of this, which has no opening whatever, except a door leading from the front subterranean apartment. This back room or cavern is occupied as a sleeping apartment.

Lodging houses are very common in London, and in other cities and large towns of England and Scotland. These are mainly intended to receive, but not to accommodate, a great many poor vagabonds, who have no house or home, and wandering about the streets, gather in there for the night, and find a temporary shelter. "In every room in such houses, with the exception of the kitchen, the floor is usually covered with bedsteads, each of which receives as many as can be crowded into it; and this often without distinction of sex, or regard to decency." The cellars in Liverpool, which are used for the same purpose, are often worse crowded than even the houses. The floor, "often the bare earth," is covered with lodgers, "until scarcely a single available inch of space is left unoccupied." In some cellars not larger than sixteen feet square, and eight feet high—containing 2100 cubic feet, 30 adult persons are sometimes packed, without means of ventilation.

In the lodging houses, there is neither regard paid to the necessities of respiration, nor attention to the common decencies of life; men and women here herd together in the same room and often in the same bed. "I found in one bed-room about twenty persons, nearly all adults, and of both sexes." Among the occupants were several young females, of eighteen and twenty years of age, who when dressed, had the appearance of decency." In many of these houses, it is intended to have the married and single rooms, and the male and female rooms separate; but, as we see, this is often, perhaps generally, disregarded. In Tranent in Scotland, "men, women and children, sleep in the same apartment." The same occurs in some of the lodging houses of Newcastle, "both sexes being crowded together." In Macclesfield, in rooms of sixteen or eighteen square yards, "are five or six beds, and three individuals in a bed married and single, male and female, to all appearance indiscriminately lodged." In Manchester the same story is told by Dr. Howard, of the "crowded state of the beds filled promiscuously with men, women, and children."

The same want of room is found in the workshops as in the dwelling houses of England. The tailors of London work in very crowded rooms, and Dr. Smith says, "the description here given of one occupation is applicable to many. Eighty journeymen tailors worked in a room with less than a thousand feet of floor, giving not much more than a yard and a quarter room to sit and work in. They were obliged to sit close together, knee to knee." Dr. Guy says, that the London artizans work in shops heated to a high temperature, and without ventilation, breathing "a foul and stagnant atmosphere, and so crowded, that the only practicable limit to the number is the want of more standing or sitting room."

Situated as the houses are, most of these being built back to back, with neither side yard nor back yard, the inhabitants of course have no place to deposit their waste and offal, except in the street or court in front. They have no place for privies but in front, no opportunity for that privacy which natural delicacy and common decency require.

A great many houses and cellars have no privies, and their inhabitants can only use the street or court, or using vessels within their rooms, empty them into the open ground in front. The whole cellar population of Liverpool have no place to deposit their refuse matter. "In Manchester, of 6951 houses inspected, 2221 were without privies, so that in this respect, Manchester is little better off than Liverpool."

Out of 1200 houses situated on the open street, 304 had no privy. Most of the larger courts have two privies, which are of course in front of the houses, in Liverpool. Back Queen Street, in Preston, has a "row of privies about 300 feet long. The street is only about six feet wide, the doors of the houses and the doors of the privies are within two yards of each other," and "the space between the privies is filled with all imaginable filth." In some parts of Charlton-upon-Medlock, twenty families use one public privy. In some ranges of cottages lately built in York, one privy is provided for from eight to twelve and even fourteen families, but some houses have each a privy. The privies of the courts are always in front, and if more than one, they are usually in clusters, "with one dirt-pit to the whole."

These vaults, or soil-holes, are often open and exposed to public view, and give forth their disgusting effluvia without obstruction. Sometimes they are filled to the overflowing, and "flood back courts." In London, "the privies of all the houses in North Street open into a ditch," and there "the soil is allowed to accumulate."

These common privies are usually the most disgustingly filthy, and suffered to be in a wretchedly dilapidated condition. The doors are sometimes wanting, and then all possible opportunity of privacy is taken away.

Many of these soil-holes are but rarely emptied, and the accumulated excrement is allowed to remain for long periods undisturbed. It is carried in wheel-barrows and baskets from the courts, and the narrowest streets, which carts cannot enter, "and much of it spilt during the tedious operation." One case is stated, where this ordure is carried in baskets and emptied into an open gutter in the street.

Some families in the neighbourhood of Field Lane, London, having no privy nor cesspool, throw their excrements into a back yard where they remain for months. Others have cesspools without drains, and there "the excrement runs into courts or streets, where they remain until the rain washes them away."

These privies in the narrow streets and courts are necessarily close upon the houses; sometimes the vault is separated from a house or cellar only by a porous wall, through which the liquid can pass and trickle down the apartment walls of the inhabited room. In Charlton-upon-Medlock, the walls of some "dwelling houses are constantly wet with this fetid fluid, which has filtered though and poisoned the air."

With all these means of corruption, and with so little means of purification, the air both in the street and court and in the house must be foul and unhealthful.

The crowded population of the houses must corrupt the air within them, and create the necessity of frequent supply of the pure element, but the narrow and infrequent windows, even when open, must afford little opportunity for the egress of foul air from within, and the ingress of the pure air from abroad; and even if these were a sufficient aperture for this passage, the atmosphere of the streets and courts is so corrupted, that it is not very much better than the internal air. All the witnesses speak of the foulness and oppressive nature of the air of these streets and dwellings. Mr. Toynbee, a surgeon of London, says, he is obliged to open the windows for his own comfort, when he makes his professional visits in these houses. and Mr. Holme says, that "the atmosphere of some lodging houses is poisonous." Dr. Smith says, that in visiting patients in these houses, he finds the air so foul, that he stays no longer in the room than necessary to make the examination, and then he goes to the door to write his prescription, in the less foul air of the street or court.

The naturally expected consequences of this state of things are found in these dwellings and streets. The causes before stated act partly by inducing specific disease and partly by deteriorating the general health of the inhabitants, in such a way as to render them more prone to all diseases. Beside this, the malaria of these localities and houses disarm the constitution of its power of resisting disease, so that the cases of sickness are not only more frequent among the inhabitants of these foul localities, but they are much less manageable, and are more often fatal, than in better and purer districts.

The sanitary maps of some of the towns show that the filthy and crowded population, and fever and other epidemic diseases exist in the same locality; and where there is dirt, defective drainage, want of pure air, there are and must be fever and other diseases. Dr. Smith designates certain parts of London as "fever districts," "from which fever is never absent." The streets, courts, alleys, and houses, in which fever first breaks out and in which it becomes most prevalent and fatal, are invariably those in the immediate neighbourhood of uncovered sewers, stagnant ditches and ponds, gutters always full of putrefying matter, nightmen's yards, and privies, the soil of which lies openly exposed, and is seldom or never removed. In Punderson's Gardens, before described, "fever constantly breaks out and extends from house to house." And Lambs' Fields is a fruitful source of fever, both to the dwellers there, and to the inhabitants of the neighbouring streets.

Dr. Duncan shows, that the common fever of England, "including all varieties, typhus, synochus, low adynamic fever, brain fever, nervous fever, &c., is the characteristic disease of the poor in Liverpool."

In the uncleaned and crowded streets and courts of Bethnal Green, "the regular recurrent diseases are fever cases, inflammatory affections, and derangements of the intestinal canal."

There are open ditches or drains in some streets of Clerkenwell, Bermondsey and Rotherhithe, London, into which all the refuse waste of the houses flows, and "in summer the stench is intolerable." Dr. Aldis says he is "called to attend more cases of fever there than in any other part of the district," and worse than all, "the epidemics, continued fever, and even small-pox are increasing."

A strict comparison of the various parts of Liverpool show how much fever is connected with the condition of the people. In Vauxhall ward, where 50 per cent. of the population lived in courts, and cellars, the cases of fever where 1 in 29 of the whole people, while in Rodney street and Abercrombie ward, with only 22 per cent. in courts and cellars, the cases of fever were only 1 in 229 of the people. There are 35 per cent. more cases of fever among the cellar population, than among the labouring population of the whole town of Liverpool. That is, for èvery 100 cases of fever that occur among a definite number of people living above ground there are 135 cases among the same number living in cellars.

There is much more fever in the damp than in the dry cellars. In seven wards, where 43 per cent. of the cellars are damp, there is one case of fever to every 41 inhabitants, and two other wards, of which only 19 per cent. of the cellars are damp, the cases of fever were only 1 in 239 of the residents.

Fever seems to follow density of population; there were only 21 square yards of ground to each inhabitant in the seven most sickly wards, and 59 to each one in the most healthy wards.

Lace street gives only four yards of ground to a person, and one case of fever to every ten persons. "Next to Lace street, in all that is abominable ranks North street, which has seven square yards to each inhabitant." No privies to more than a fourth part of the houses. "Nothing can exceed the filth of some of the courts," and here the fever patients were one in seven of the inhabitants. One of the Liverpool courts is so densely peopled as to allow only 1¾ square yards to a person, and nearly one-half of these were sick with fever, and some with other diseases, in course of a single year.

The city of York is situated on uneven ground, part of it is low, damp, and badly drained. In the former, adjoining the west bank of the river Foss, with an average altitude of 29 feet, 2·2 per cent. of the members of the Benefit Society were sick and disabled from work on an average of 15·29 weeks each; while in some other streets, 53 feet in altitude, and comparatively well paved and drained, only 1·6 per cent. were sick, and kept from work only 5·37 weeks each on an average.

Scrofula is very common in these pestiferous abodes of the poor, and causes a great increase of mortality in the crowded and malarious districts. Foul air is one of the most efficient causes of this disease. In the Norward school, scrofula was very prevalent and fatal among its 600 pupils. The air was foul. But "ventilation was applied by Dr. Arnott, and scrofula soon after disappeared." The families in the crowded houses, and workmen in crowded shops suffer from this disorder. Dr. Aldis finds "glandular swellings, scrofulous affections of different parts of the body, and scrofulous ophthalmia" in such places, more than in others.

Tuberculous disorders, and especially consumption, prevail much in these crowded districts. Dr. Clark says, that the respiration of impure air is one of the most powerful causes of tuberculous disease. And the examination of the health of those who breathe the corrupted air of these districts and houses, confirms this opinion.

According to the opinion of Dr. Smith, "no one who lives in or near a malarial district, is ever for a single hour free from some disease of the digestive organs." Consequently there must be a great amount of indigestion and disorder of the nutritive organs in various forms, and the body is thereby so much enfeebled as often to be unable to bear the atmospheric changes with impunity or resist other causes of disease.

From these abundant causes of prevalent and unmanageable sickness, we should expect a high rate of mortality; the poor seem not only to have a lower degree of life, diminished strength for labour, and less power to resist causes of disease, but a diminished duration of life; so that the sum of their vitality is less than that which people in more favourable circumstances enjoy. This increased burden of death first falls upon the children of the poor. These children are less subject to continued fever than adults, yet they are more liable than the children of the higher classes to exanthematous fever, scarlet fever, small-pox, measles, &c., "and the poisonous condition of the districts, renders the diseases fearfully mortal." Out of the same number of births in the various wards of Nottingham, for every 100 that die in Park ward, the cleanest, and inhabited by the most prosperous people, 143 die in St. Ann's ward, and 152 in Byron ward, "which abound with ranks of back-to-back houses, enclosed courts, privies under dwellings, unpaved and undrained streets, cellar apartments, and barrack lodgings."

Those who pass through the destructive ordeal of childhood and enter upon adult years, are still surrounded by morbific influences, and subject to privation of proper air, food, clothing and protection; and under the weight of these causes, they are open to attacks of diseases, which lessen the average of life, and send them to premature graves.

From the several tables in Mr. Chadwick's Sanitary Report we find, that in nine different towns and unions, the average life of the families, including parents and children of the most favoured classes, was 44 years, and that of the poor was only 25 years. In some towns there was still greater discrepancy. In Bethnal Green, the favoured lived 45 years, and the poor 16 years. In Liverpool these classes lived respectively 35 and 15 years. In Preston 55·42 per cent. of the poor, and only 19·59 per cent. of the prosperous, died under five years of age. In the town of Preston, 34·8 per cent. died under five years of age, in those streets which are stated to be "well-conditioned," and 70·6 in those which are called "ill-conditioned." But Mr. Clay says in his report: "There is in 'the lowest deep a lower deep,' and in districts of the worst kind there are certain streets and courts the worst of the districts. In these the mortality under five years was 73·3 per cent., and one death in every 19 persons, while in the whole town of Preston, there was only one death for every 29 persons.

The deaths in the worst wards of Liverpool were 1 in 23·56 and in the best wards 1 in 41·62. In Charlton-upon-Medlock, they ranged from 1·95 per cent. in the best class of houses of the best streets, to 4 per cent. in the worst class of houses of the worst streets.

In the best drained and ventilated and highest positions of York the deaths were 1 in 54·32, and in the worst and lowest parishes of the same city 1 in 34·15.

In the highest, and best built and drained districts of Nottingham, the deaths are 1 in 50, and in the worst 1 in 22. And the average age ranges from 40 years in the most favoured districts to 11 years in one district, where the houses are built back to back, with only one room to a family and this crowded to excess.

We find the greatest amount of sickness and the highest rate of mortality in the most densely crowded districts. Taking a large view, among 3,559,333 inhabitants of the rural districts of England, with a square mile to every 206 persons, the annual deaths were 1 for every 54·91—while among 3,759,002 inhabitants of the town and city districts, with a square mile for every 5045 persons, the deaths were 1 in 38·16. That is, the mortality of the towns as compared with the country was as 55·91 to 38·16, or 45 per cent. greater; as for every 100 that die in a definite number of people in the country, 145 will die in the town.

It is an important question to determine how much more life is worth in the country than in the towns. The reports of the health commissioners now before us, and the reports of the Registrar-General afford much light on this matter. The statements in the preceding paragraphs show, that death is more frequent in the dense population of cities than in the sparse population of the country.

The mortality of the city falls first with a peculiar force upon infancy and childhood, and then upon manhood in its years of action. As there is a comparative increase of mortality in the early and the middle stage, there must of course be a comparative decrease of death of the aged—not because the old enjoy a greater tenacity of life in the city than in the country, but because there are fewer of them to die in the towns. On comparing the early and late mortality of some of the cities with that of some of the country districts, we find it to be in favour of the rural population.

The rural part of Surrey contains a population of 229,733. Liverpool has 223,434, yet in 1841, the deaths in this portion of Surrey were 4256 and in Liverpool 7556, being an excess of more than 3500 deaths in the latter place.

The following table, taken from the Registrar-General's Fifth Report, p. 33, shows the comparative progress of life in these two districts.

Of 100,000 children born there die

	In 10 years.	In 50 years.	In 70 years.	Mean length of life.
Surrey,	24,577	47,940	71,962	45
Liverpool,	51,789	74,122	92,627	26

A comparison of the mortality of near four millions of population in the rural districts with the mortality of a similar amount of people in cities, shows a similar difference in the value of life. "The density of the population of the country districts was to that of the town districts as 10 to 245, and the deaths as 100 to 146." In the former 20 per cent., and in the latter 9 per cent. survived their seventieth year.

There is a similar discrepancy in the "civic and rural districts" of Ireland. The expectation of life being at birth 24 years in the former and 30 in the latter.

The same difference is shown in the mortality of cities of different degrees of density of population. The following table, taken from the reports now under review, shows this matter very clearly.

	Population to square mile of builded area.	Deaths 1 in	Average age at death.	Number of Deaths in every 1000.	
				Under 5.	Over 70.
London,	50,000	37·38	26½ years.*	408	111
Birmingham,	40,000	36·79		482	88
Leeds,	87,256	36·73	21 "	480	79
Manchester,	100,000	29·64	20 "	510	60
Liverpool,	138,224	28·75	17 "	528	54

The relative mortality of these towns corresponds very nearly with their relative densities of population.

Some portions of these towns are more densely inhabited than others, and in some districts, "the inhabitants are packed together," and crowded beyond ordinary conception of comfort or possibility of health. In a small part of London, the inhabitants are crowded in a proportion of 243,000 to a square mile, which Mr. Tarr thought "the greatest density attained in the heart of English cities." But in Liverpool 12,000 people live on a surface of 105,000 square yards, which is in the proportion of 460,000 to the mile.

This packing of people is nearly equaled by one example in Boston, Massachusetts, where, "in the Broad street section, containing 3131 inhabitants, the average number of persons per house was 37, and each individual had only 9 square yards of room on the ground," which is 441,542 to the square mile. These are the abodes of the poorer Irish, who are more accustomed to close quarters than the Americans generally are.

We have no precise data to determine the mortality of these very crowded districts, but judging by those of a similar character from which we have mortuary reports, we have no reason to doubt, that sickness and death prevail there in the inverse ratio of their space of earth to stand and live upon.

The average age of those who were buried in the Catholic Cemetery of Boston was 13 years and 5 months, while that of all who died in the same city was 22 years and 8½ months. Most of those who were buried in the Catholic Cemetery were from the Broad street section, yet others were also buried with them.

Comparing the more dense with the less dense parts of the same cities, we find a similar difference of mortality.

In 5 wards of York, with an average of 84 inhabitants to the acre, the deaths were 1 in 53: and in 13 other wards, with 248 to the acre, there is 1 death to every 35 inhabitants.

In 35 districts of Nottingham, with 187 inhabitants to the acre, the average age of all who died was 26·6 years: and in 32 other districts, with 316 to the acre, the average age at death, was 19·8 years.

Some parts of Liverpool present the greatest density of population found in Great Britain; and though the whole town is bad enough for health, yet even here are different degrees of evil, of crowding and of mortality. In four wards, where each inhabitant has only 18⅛ yards of ground, the deaths are one in 28·31, while in ten other wards, where each person has 239 yards of ground, the deaths are only 1 in 41.

The whole of England had, in 1841, a population of 299 to the square mile. These are about equally divided between the rural districts and the towns.

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* Including only Kensington, Strand, Whitechapel and Bethnal Green Unions—and not the healthiest districts.

The fact, that the mortality has increased with the density of population is corroborated by a similar increase with an increasing population, in the same towns or districts, as is seen in the following table.

In the town of Preston:

Years.	Population.	Deaths to population.	Average age at death.	Per cent. of deaths. Under 5.	Over 5.
1791	8,000	1 in 45	23·609	44·943	55·057
1811	17,065	1 in 48	19·998	51·315	48·685
1821	24,575		18·942	56·573	43·427
1841	50,131	1 in 33	19·54	53·36	46·64

Two parishes in York, whose population doubled in 25 years, increase the proportion of infant mortality from 32 per cent. to 53 per cent., and diminished the mean age at death from 34·9 years to 27 years in course of the same period.

The average age at death in Boston, Mass., underwent a similar diminution, corresponding with the increase of population during 30 years.

1811 to 1821, Population ranging from 33,787 to 43,277, Average age 27·25.
1831 to 1841, " " " 61,392 to 93,383, " " 22·72.

The working of the same law of the influence of density of population is shown by an opposite fact of decreasing population. In two parishes of York, where "old buildings were taken down, the streets widened, and the population diminished," the mean age at death was increased from 26·2 years during the 5 years ending in 1821, to 36·6 years during the period ending in 1841: and the infant mortality diminished from 45·9 per cent. to 30·4 per cent. of the whole number of deaths in the same time.

The crowded state of many of the dwellings of the poor is injurious to the morals as well as the health of the inhabitants. The proper separation of the sexes cannot be obtained in a habitation, which affords only a single room for a whole family. A large portion of the labourers in some cities have only one room for every purpose—eating, sitting, dressing, washing and sleeping, of the whole family—male and female—children and adults. Here, without any dividing wall, the married and the unmarried, the grown up sons and daughters, as well as those of more tender years, must sleep. Worse than even this, in some families, the married and the unmarried adults of both sexes sleep in the same bed. Numerous instances are stated of these facts and of the destructive consequences to decency, delicacy and purity of sentiment and of habit, and of the awful corruption that sometimes follows. Mr. Wood says, he had above 100 cases of adult persons of different sexes sleeping in the same room. In one room were two beds; a man, his wife and child slept in one of these, and two unmarried females in the other. Mr. Wood, one of the reporters, says, he met with cases of similar character, and several where "a mother was sleeping with her grown up son." "I found in a cellar in Liverpool, a mother and her grown up daughter sleeping on a bed in one corner, and in the other corner, three sailors had their bed." A man and his wife slept in one bed, two grown up females in another, and two young men, unmarried, in a third bed, all in the same room. Several instances were found of a man, his wife and his wife's adult sister sleeping in the same bed.

In many of the lodging houses, there is no pretension to separation of the sexes. These often sleep promiscuously in the same room, and sometimes in the same bed. Some of these lodgers are prostitutes, and others become so, by this indecent herding together, yet the greater part have not yet become so degraded.

When a labourer marries, he takes a single room for himself and his wife. This seems then sufficient for the two; and, for some time afterward, this seems to be large enough for them and their young children. As these children grow up gradually they are accustomed to dress and sleep together and feel no need or propriety of separation of the sexes, and the increased cost of maintaining the enlarged family, without a corresponding increase of income, prevents the father from hiring additional rooms for separate lodgings. Consequently parents, and sons, and daughters, all grown up, are frequently found lodging in the same room.

All that natural delicacy which is maintained by the separation of the sexes is here lost, and scenes are described which appear shocking to the common sense, but which, from their familiarity, do not seem to be offensive to those who are accustomed to no other. One witness states, that, in one of his visits, in a room where a young woman was sitting, a young man took his clean shirt and "very deliberately threw off the shirt he had on, and after warming the clean one, put it on." This was necessary, for when they had no other place for dressing or retiring, this work must be done in each other's presence.

The moral pollution, the deep degradation of feeling and life, that grow out of the want of separate lodging rooms, and of separate beds, are reported as being frequent. A prostitute told one of these witnesses, that her first step in wrong was from sleeping in the same bed with her married sister and her husband.

Dr. Smith states, that he had "seen a young man of 20 years, sleeping in the same bed with his sister, a young woman of 16 or 17 years." "That incestuous intercourse takes place under these circumstances, there is too much reason to believe." Dr. Aldis gives the case of a young woman, who became insane, in consequence of incestuous intercourse with her own brother. Worse than this, was a case of a girl 16 years old in Leeds who became pregnant by her own father, with whom she slept.

We might quote, from these reports, more of these sickening details to show the corrupting influence of the crowded dwellings upon both sexes: but here are enough for our present purposes. Those who wish to pursue the matter further can find sufficient opportunity in the health of towns and sanitary reports.

"A clean, fresh and well ordered house exercises over its inmates a moral no less than a physicial influence, and has a direct tendency to make the members of the family sober, peaceable and considerate of the feelings and habits of each other." Whereas, a filthy, squalid, unwholesome dwelling, in which none of the decencies common to society, can be observed, tend to make every dweller in such hovels regardless of the feelings and happiness of each other, selfish and sensual."

This is the testimony of Dr. Smith from long and extensive observation of the moral as well as the physical health of the poor. He says still farther, that "in the most wretched of the hovels in these neglected districts" not only "the pickpockets, the thieves, the degraded and the profligate," "but also, in general, are great criminals, violent and reckless men," born and matured.

There seems to be a natural and habitual connection between filth and moral pollution, and also between outward neatness and inward purity. In many courts and in some streets and lanes, there are no private privies, all are public and standing out in the open court or passage way in front of the houses, and some of these have no doors. The residents of these courts and lanes—males and females—are obliged to resort to these public and open houses, exposed while going in and coming out, and sometimes while there, to the gaze of the people in the dwellings, the passengers and loungers in the street. The vaults are often uncovered in some places, and the excrementitious deposit exposed to the eye as much as the pavement of the street, and some are so rarely cleansed, that the foul gathering overflows and covers the surface of the neighbouring ground.

That instinctive delicacy, which impels both male and female to hide themselves, when they perform their natural offices, is never developed in many of those who are born in these neglected streets or courts, and are always accustomed to this *cloacal* publicity; and it is almost inevitably blunted or extinguished in others whose change of circumstances and location compel them to give up their former habits of privacy, and resort to the public privy.

Some resist this outrage upon decency, and avoid the loathed exposure as long as possible. They consequently suffer from their alvine and urinal retentions. The witnesses testify to very great suffering and derangement of health, in females especially, from this compulsory neglect of the habitual discharges. In many of these places, the all-conquering power and contagion of filth rarely fails in its struggle with habits of neatness, and feelings of delicacy. The heart becomes more foul and the mind more sordid with its corrupting influence. Dr. Smith says he saw a neat woman who had just moved into a dirty court, where "a stream of abomination, the filth from the houses," was flowing close to her door. She said, she had swept it away from her door "five times this very day," but "it is of no use to try to keep it clean." She was thus beginning to yield in despair, and "if she remains there, she must necessarily sink into the state of squalor and filth of her neighbours."

Some women who had been especially neat and tidy before marriage, when they had opportunity to practise their habits of neatness and order, became sluttish and slatternly after marriage and removal to some of these hovels, where filth and disorder must reign.

Everything that lessens the beauty and charm of home, lessens its attractions for the father, who may go elsewhere. The foul air within these houses, the noisome stench from the yards and courts without, the filthy aspect of the floors, the walls and the furniture, the unwashed children and the sluttish wife, and the ill health and fretfulness in consequence, together with the "domestic jars and disputes," all tend to render home uninviting to the weary labourer, and to send him abroad for peace and rest. The houses of his associates are no better, the lanes and courts are also offensive, the ale-house, with its temptations, is open to him; therefore, "the wretched state of his home induces a man to spend his money on selfish gratifications." The stimulation of ale and spirits is sought by both father and mother, to obviate the depressing effects of the foul air, and the general filthiness of their abodes, and hence intemperance accompanies the want of cleanliness.

Undoubtedly, a supply of water is a matter of prime necessity for the people. For domestic purposes of cooking, washing, and bathing, the cleansing of persons, clothing, and houses, water must be supplied constantly and freely. The average quantity necessary for each individual is estimated variously from twelve to twenty gallons a day, by the different witnesses, whose reports are in these volumes. The highest estimate is the best for health and convenience. Besides the want of water for household and personal use, much is wanted for cleansing streets, washing out the drains, sewers, &c. This would require much more than even the family uses.

So large a quantity as this cannot be obtained for the dense population of a city, from the ground on which they live, neither natural springs nor artificial wells can supply sufficient for them, and in those districts which are the most densely crowded, where, as in some parts of Liverpool, the whole surface of ground, including both the uncovered street and the covered house lot, allows less than nine square yards to each one of the inhabitants, there cannot be enough of water from the rains above, and the springs under the earth, to supply their necessary wants. As this quantity cannot be obtained on the spot for the residents of a city, it must be obtained from some other source, a running stream, a pond, a lake. For many cities, this is to be found in the immediate vicinity, or within the city itself; as at London, Nottingham, Philadelphia, &c.; for other places it is brought by aqueducts from considerable or remote distances, as at Boston, New York, &c.

Circulars were sent by the Health of Town Commissioners, to fifty towns and cities, inquiring into the supply of water to their inhabitants. "Upon the examination of the statements and answers" from the fifty towns, "it appears that only in six instances could the arrangements and supplies be deemed, in any comprehensive sense, good; while in thirteen they appear to be indifferent, and in thirty-one so deficient as to be pronounced bad, and so far as yet examined, frequently inferior in purity."

In many cities, the water is sent along the principal streets, and those inhabited by the wealthy and the prosperous; while none is sent to the narrow streets, the alleys, the lanes, and the courts, where the poorer classes dwell. The laws provide no better supply for the poor, and the usages do not need the requirements of the law, and "they all stop short of a most important point, namely, measures for carrying supplies, under an economical and properly regulated system, into the habitations of the poorer consumers."

There are some exceptions to the above statement; in some towns, the water pipes are carried into the alleys and courts, but rarely is the water carried into the houses. Most of the poor, who have water from water companies, receive it only in stand-pipes, or tanks in the street or court, common to many families in the neighbourhood. In many places, these stand-pipes and tanks are at considerable distance from some of the houses, and the inhabitants "are obliged to fetch the water at much cost, and inconvenience, delay, labour, and expense," which come very heavily upon the poor.

These tanks are exposed to the sun, the dust, the dirt, to the occasional deposits from careless people and children, and, consequently the water is frequently polluted and rendered unfit for healthful use.

In some towns, the water is not "kept on the pipes" during the whole time; but the supply is intermittent—during certain days or certain hours of the day. The families which are thus supplied, are compelled to draw and carry to their houses, while "the water is on," as much as will supply them, while it is off. In these cases, there arise two evils, first, crowding of the carriers around the pipes and tanks, eager to get their supply during the short period in which it is offered to them, and the frequent quarrels and disturbances that arise in the struggle to be the first supplied; and secondly, the great waste of water from the provident desire of these people to be on the safe side, and obtain enough, and the practical habit of obtaining more, which must be thrown away, when the water is again offered them.

These evils, although they amount individually to little, yet appear, by the abundant evidence in the Reports, to be, on the whole, very great, and demand consideration in all plans for supplying towns with water.

From the absolute want of water, in the whole of some towns, and in the poorer districts of most towns, and the very inefficient means of supplying the poor in others, there occurs great suffering among this class of people, both in comfort and in health, while, for all the purposes of economy, convenience and health, for cooking and washing, and for personal and household cleanliness, not less than thirteen gallons a day are necessary for each individual, many of the poor cannot obtain as many quarts, and some not half as many pints.

Some use very little water in cooking, and to save it, "they put greens into the pot without washing them." Mr. Toynbee says, that he has "observed the same water, which is very filthy from having been used in washing some clothes, and again used to wash others." "Even sick children are neglected and left dirty." This surgeon says that, often, after dressing sprained ankles or bad ulcers of the legs, he finds no water to wash his hands; sometimes he can find water in others' rooms, sometimes it is there "so dirty as to be unfit for use;" and at other times, he says, "I have been obliged to go away with my hands unwashed." "The towels, having been washed in dirty water, are unfit for use."

Mr. Liddle says, "the smell of their linen, which, they tell me, is quite clean, is often offensive;" "cleanliness is entirely neglected, and their clothes and their persons remain in a most dirty state." "Habits of uncleanliness necessarily and naturally are established amidst this privation of the means of purification. The children are born in dirt, and grow up unwashed and filthy. The idea of cleanliness is strange to them; they have neither taste for, nor opportunity of, being clean." And one witness, after describing the condition and habits of some of the poor, who are scantily supplied with water, says, "such is the love of uncleanliness, when once contracted, that no habit, not even drunkenness, is so difficult to eradicate."

Pure water is necessary, and an abundant supply of it is an indispensable luxury for those who are accustomed to enjoy it, but it is not so for those who have never known it, or have been long deprived of it. Their sensibilities have never been exalted above, or they are brought down to their power of gratification, and, consequently, their wants are commensurate with their supply. It is in vain, therefore, says the Sanitary Report, "to expect, in the great majority of them, that the disposition, still less the habits, will precede, or anticipate, and create the conveniences" of cleanliness. Their own personal and domestic filth and discomfort, their moral degradation and low health, consequent upon the want of water, are insufficient to cause them to demand and create a supply of this element, or to remove to places where it can be obtained.

So little do they feel this want, that many of them will not even take the trouble to go a few rods to the well or tank, and draw sufficient for comfortable and healthy use. Many of the poor are weak, necessarily so from poor food and bad air, and wants of personal neatness. They are obliged to use all their available strength in their labour, and to them, the additional exertion of drawing a pail of water is more than they have power or disposition to make.

In most of the towns, water is supplied very imperfectly, or not at all, to the districts inhabited by the poor. The main pipes are carried along the principal streets where the wealthy and the comfortable dwell. Those who can best afford the time and the strength for drawing water, or the money to pay others to draw it for them, and whose habits and tastes would compel them to obtain it, are well supplied in their houses, and often it is carried to their uppermost rooms. While those who need it for health and strength as much as the others, but whose sensibilities are not sufficiently cultivated to feel the want of it, whose habits and tastes do not require it, and whose means and strength do not permit them to obtain it, rarely have it brought to their houses, and often do not have it even in their streets or neighbourhood.

To those, who thus find hardly sufficient pure water for the necessary purposes of cooking and drinking, and not enough for ordinary and comfortable washing, baths for the whole person are out of the question. If these persons can but cleanse the face and hands, which are seen of man, it is all they have the means of doing, and all that, in their circumstances, can be expected of them. They are thus deprived of one of the necessary means of health and strength, an opportunity of maintaining a perfectly clean state of the general surface, a pure skin. Many of these consequently never bathe the parts that are out of sight. Some, from summer to summer, perhaps from infancy to old age, never wash themselves throughout. They carry upon themselves, through all this period of months or years, the accumulated excretions from within, and the gathered dirt from without, which, combining together, generate diseases of various kinds in the sufferer, and send forth effluvia foul and offensive to those who are with them. The foul air of their filthy and unventilated rooms, their impure skins, and their unwashed clothing, combine to give these people such a powerful odour, that Mr. Liddle says, "when they attend my surgery, I am always obliged to have the door open. When I am coming down stairs from the parlour, I know at the distance of a flight of stairs, whether there are any poor patients in the surgery.*

It appears from the evidence and the opinions of many witnesses, builders, architects, proprietors, physicians, agents, and engineers of water companies, that water in abundant quantities can be carried into both the courts and the dwellings of the poor, and delivered in every room, where it is needed, for an annual rent less than the usual cost of buying or fetching an insufficient quantity, or less than the value of time, that must be lost to the labourer who draws it himself for his family.

The occupants of these miserable dwellings cannot do this themselves. However much they may need a constant and abundant supply of pure water, they have neither the sensibility to feel the want of it, nor the means of obtaining it. But wherever it has been carried by the public authorities or by the water companies into their streets and courts, and by their landlords into their houses and rooms, they have become accustomed to the free use of it, and found such an improvement in the household economy, and so much greater facility in the performance of their domestic operations, such an increase of personal and domestic comfort, and so much addition to health, strength, and productive energy, that they are willing and able to pay the small additional rent, which the new outlay demands, which is stated to be not more than a penny a week in some cases, and two pence a week in others, amounting to one or two dollars a year.

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* While I have been writing this article, in February, 1848, I sat in a sleigh on the leeward side of an Irish labourer, whose clothing smelt so oppressively, that I was induced to ask him where he had lived. He said that he had been living in a temporary shanty on the South Shore Rail Road, and had slept in an attic chamber with fifteen others, whose beds entirely covered the floor. The air was very foul, and there was no opportunity for ventilation. He had walked eight or nine miles that morning through the snow, facing a brisk northwest wind, and yet this had not been sufficient to remove from his person and clothing, the foul odour which they had received from the corrupted air of his lodging room.—E. J.

Baths cannot be provided in the rooms of the poor, who are necessarily limited in their room; but they can be provided elsewhere, and at the public expense. Public baths can be established to accommodate a very large population, at so small an expense, that a very trifling fee from each one, who uses them, would make a fair remunerating return for the cost of the buildings and the apparatus, and for the expense of the maintenance of the establishment, and of procuring the water.

The public baths, which were established in Liverpool, by the corporation, in the year 1842, have been very successful, both as an investment, and as a means of public comfort. There are in this establishment, warm and cold plunge baths, and shower and vapour baths; and these have various grades of convenience and elegance of each kind. The price of these baths varies from a penny, about two cents, for the cheapest cold bath, to a shilling, about twenty-five cents, for the dearest warm and vapor baths. These baths had been open two years, at the date of the Report. During the first year there were 11,661 baths taken; and during the second year, this number was increased to 16,323; showing an increase of about forty per cent. within one year. It is very probable, that this increase still continues, for this is a matter which is not likely to go backward. If the increase has continued at the same rate until the present time, not less than 60,000 baths will be taken during this year in this establishment.

What proportion of the poor, what of the more favoured classes have availed themselves of these baths, is not stated, but as the great majority—ninety per cent. in the first year, and eighty per cent. in the second year—took the cheapest baths, at six cents, and under, it may be supposed that among these were many of the poor.

Connected with the supply of water, and the domestic comfort, and the health of the poor, is the establishment of wash-houses for their use. For all of this class, and certainly for those who do not have water brought to their rooms, the burden and inconvenience of washing their clothes are very heavy. Their single rooms, often crowded, close, and filthy, allow no opportunity for the additional apparatus of tubs, &c., and their limited room, with air already saturated with moisture, seldom even imperfectly, and never perfectly ventilated, prevents their drying these clothes within doors; their want of private yards, allows them no means of drying on their own premises, and the narrow and dirty streets and courts, are equally unfavourable to drying their clothes on the public grounds.

To remedy this difficulty, public wash-houses are established for the poor. These are provided with water, tubs, boilers, fuel, &c., for washing, and convenient places and apparatus for drying. In Liverpool, "each woman pays one penny, (about two cents,) for a length of time not exceeding six hours, for the use of tubs, water, and having her clothes dried." "These wash-houses are intended for the poor, and preference is given, 1st, to those who occupy a cellar or a single room only: and 2d, to those with the largest families and the smallest means of living."

Such establishments as these do much towards increasing personal and domestic neatness, and improving the health and comfort of those who are allowed to use them.

Very few of these English towns are supplied with water by their own corporations. Those, which are supplied at all, receive it from companies or individuals. In some towns, there are more companies than one, which are allowed to be established, under the idea, that competition of rival companies will give a better and a cheaper supply of water than can be obtained from one, that should monopolize the whole town. In some towns, the pipes of the various companies run along the same streets, and supply customers who live side by side, and often produce great confusion and inconvenience, by their frequently digging up the streets for repairs, &c. In St. Martin's Lane, London, five gas pipes, three water pipes, and a sewer all run along together, and almost fill the ground under the pavement. The charters of some of the water companies require them to send their pipes along the main thoroughfares and the principal streets; few are required to send water to the by-lanes and the obscure courts; and none are required to send it into the houses of the poor.

The rivalship of companies has not proved to be a sufficient guaranty for their effectual supply of the people of all classes, and indeed, nothing short of the power and comprehensiveness of the corporation, as in Philadelphia, New York, and Boston, can accomplish all that is needed for the supply of water to the whole population.

The supply of water should be connected with the drainage, especially the house drainage. Water is necessary to aid in carrying away all the house offal through the small pipes to the sewers; and it is equally necessary to wash away the offal of the houses and that of the streets through the sewers to the main outlets. For this purpose of aiding the drainage and sewerage, as much water is needed as for all domestic purposes, and perhaps more.

This would be an additional reason for the whole water supply being in the hands and under the direction of the city or town corporation. And most of those, whose evidence is here given, are of opinion, that a single superintending officer or board of officers, should have the charge of both these matters, and also of the paving and the grading of the streets.

The great prevalence of disease and death among the poor, seem to be caused by the difference of condition, and by circumstances which may be removed. The eye is offended, the nostrils disgusted, and oftentimes the skin is polluted by the street and the dwellings, the clothing and the persons, the air and the water, and the food of the poor, and one is involuntarily and almost irresistibly led to believe that there must be disease and death more frequently than among those whose quarters and abodes, whose persons and habits are more agreeable to the senses.

Dr. Smith says that, "no one who lives long in or near a malarial district, is ever, for a single hour, free from some disease of the digestive organs." Fever first breaks out invariably "in the foul places."

Mr. Toynbee says "defective ventilation appears to me to be the principal cause of the scrofulous affection, which abounds to an enormous extent among our (dispensary) patients." And also "of all the diseases of the joints which we so frequently meet with, as well as the diseases of the skin." "Hydrocephalus arises in abundance in these rooms." "The eye and the ear are injuriously affected." Proof is brought from Baudelocque on *maladies scrofuleuses*, to show, that living in foul air engenders scrofula. "In crowded rooms the diseases are excessively difficult to manage." "In the less crowded rooms, and more cleanly habitations, the mortality is not so great; diseases are less severe, last a shorter time, and do not leave behind them the same shocking effects on the system."

Measles are more abundant and fatal in the bad districts and habitations. Dr. Aldis speaks of "the depressed and low condition of health in which these people are always found," and says that, "the small-pox has fallen like the plague on some of the worst conditioned spots." Dr. Duncan says, "fever is the characteristic disease of the poor of Liverpool, and is caused by the crowded state of districts and rooms, without ventilation." Mr. Holland says, "that in Charlton-upon-Medlock, in a family of five individuals, there will be on an average, about fifty days a year more sickness *due to the insalubrity of the dwellings.*"

Sickness is not only more frequent and severe among the poor, and in their ill paved districts, but it is more fatal, consequently the mortality is higher, and the average of life is shorter than in the better districts. In Charlton-upon-Medlock, the rate of mortality was, in the first class of houses, on the first class of streets, 1 in 51, and, in the worst houses on the worst streets, it was 1 in 25, being little more than double the number of deaths in proportion to the living.

In York, 1 in 47½ died in the best, and 1 in 28·82 in the worst drained and ventilated parishes. The average age in the former was 35⅞ years, and in the latter 22½ years.

In Leicester the average was 25½ years in drained districts, and 17 years in the undrained districts.

In Preston, in 1840, 1 in 14·6 died in the worst streets, and only 1 in 29 through the whole town.

The rate of mortality differed in Liverpool from 1 in 41 in the best, to 1 in 23 in the worst wards; that is, for every 100 that die in the one, 177 die in the other.

We might quote numerous other instances from these reports, to show the excess of sickness and mortality among the poor, and in the ill-conditioned districts and dwellings, above that, among the more favoured inhabitants of the better districts; but here are enough to convince the most skeptical, that disease and death prevail more in the neglected than in the well cleaned streets and houses.

And if still farther proof were wanting, it is easy to show the improvement of health and increase of life, that have followed from improvements in the streets and dwellings.

Some narrow streets have been widened, some closed courts opened, some foul and undrained districts cleaned and drained, some houses have been ventilated; and though these improvements have been limited and partial, yet they have been so constantly followed by improved health and diminished mortality of the inhabitants, as to leave no doubt, that their former condition was the cause of disease and death. Dr. Laycock says, "the health of the city [York] gradually improved concurrently with the improved sewerage and drainage." Many of the streets were formerly very narrow, and the houses built with projecting stories, so that their upper parts nearly met from opposite sides of the street. These houses were pulled down, and the streets widened, so that the sun and air had free access for ventilation; sewers were also established, and the streets were paved. The consequence was that the mortality, in course of 100 years, diminished from 46 to 23 per 1000 of the living.

Dr. Smith states, that in one large house inhabited by four families, fever was for a long time prevalent, "that one set of people had gone in, become ill with fever, and died; that another set of people had gone in, and been in like manner, attacked with fever and died; and this had occurred several times, when the magistrate gave the house in charge to a medical officer, "who caused it to be whitewashed, fumigated, and thoroughly cleansed." "Since this was done the rooms have been occupied by a fresh set of people, but no case of fever has occurred.—*First Report of Commissioners.*

Dr. Duncan states, that the number of fever cases in a crowded district of Liverpool, was diminished in consequence of opening a wide street through it. Mr. Holland says, that in Charlton-upon-Medlock, "the diminution in the rate of mortality has been nearly 20 per cent. in the streets that have been improved."

From a comparison of the mortality in twenty streets of Manchester before and after improvements, "it was ascertained that the deaths immediately subsequent to the drainage and paving of the streets, were diminished more than 20 per annum out of every 110."

An instance is quoted of a crowded and filthy district, that had been long subject to very abundant cases of fever. In apprehension of the cholera, this place was thoroughly cleansed, the houses were cleaned and whitewashed, and the streets and courts were drained and swept.

Fever immediately disappeared, and the place continued healthy until the fear of the cholera passed away, and the place became filthy again, and then the fever returned and prevailed as before.

In the Sanitary Report on the labouring classes, there are many cases quoted of the improvement of health following upon drainage, both in Great Britain and in France. The deaths in the Isle of Ely were 1 in 31 before drainage, and 1 in 47 afterwards. Typhus and intermittent fevers formerly prevailed in the parishes of Knighton, Isore, and Bodswell, but ceased after the marshes were drained.

"The most densely crowded and filthiest locality" in London, was improved by making a common sewer through it. Dr. Laycock compares Rufforth with Accomb. Rufforth is low and badly drained, "and has a wide stagnant ditch passing through." "Accomb is situated on an eminence," and is well drained. In Rufforth, the deaths from epidemics, are 1 in 69, and from all causes, 1 in 34, of its inhabitants, and the average age at death is 28 years. In Accomb, the deaths from epidemics are 1 in 258, and from all causes 1 in 41, of the living, and the average age is 35½ years.

The effect of ventilation in improving health, is abundantly proved. A crowded place, called "The Barracks," in Glasgow, was inhabited by 500 persons, "every room contained one family." "Fever constantly prevailed." The proprietor fixed to each room a tin tube, two inches in diameter, which led "to the chimney of the factory furnace." "During the ensuing eight years fever was scarcely known in the place." "A greater part of the great school at Norwood fell into ill health, and many died, from imperfect ventilation of the houses." But when this was remedied, "the children recovered their health." "And 1100 children are now maintained in good health, where 600 before ventilation were scrofulous and sickly."

It seems to be the general opinion, that a large part of the sickness incident to the poor, the dwellers in these crowded districts and houses, in these filthy and undrained streets, might be prevented, and, consequently, the mortality diminished. Mr. Toynbee says, the sickness and mortality might be reduced one-third immediately by proper measures. Dr. Guy estimates the possible annual saving of deaths from consumption alone "at little less than 5000."

Mr. Holland says, if the worst streets were put into good condition, the rate of mortality would fall twenty-five per cent. or more.

Mr. Coulthart says, that the introduction of proper sanitary measures into Ashton-under-Lyne, would prevent a third of the cases of sickness, and one-third of the deaths of that town. Mr. Hawksley says, that "the loss of life in Nottingham from causes, principally of a physical, and undoubtedly of a removable nature, would appear to average not less than 9 or 10 years to each individual."

One of the most melancholy consequences of the privations of the poor, is a want of sensibility, and a lively perception of their wants. This is shown "in the quiet and unresisting manner in which they submit to their lot." Dr. Smith says, "they make no effort to get into happier circumstances; their dulness and apathy indicate an equal degree of mental as of physical paralysis." In proper degree, this is the virtue of contentment, which enjoys the gifts of Providence, however small, without complaining that they are no greater. But this degenerates into insensibility, and even into a sullen indifference, that does not care to do, or be any better, and prevents all attempts at moral or physical improvement. Dr. Smith says, that "amidst the greatest destitution and want of domestic comfort, I have never heard, during the course of twelve years' practice, a complaint of inconvenient accommodation."

The children were born and bred in crowded rooms, of narrow streets; they were cradled in filth, and breathed a corrupted and noisome atmosphere; they were ever accustomed to indecent exposure, both of person and of offensive matters; they have never known the comfort or the use of fresh air and pure water in sufficient quantities, nor have they felt the want of them; they have had no means of cultivating cleanliness of person or clothing, or house, and no opportunity of indulging in the personal privacy, which instinct would seem to require; that delicacy and purity which seem natural to the more favoured, is never developed, or it is early extinguished, in these wretched poor, so that they feel no wrong in their domestic habits. Some of the girls, who slept in the room with men, when spoken to by the physician, who saw them there, did not understand that they had degraded themselves by so doing; and even grown young women who slept in the same bed with their father, or brother, or brother-in-law, seemed to feel no impropriety in so doing.

When men and women have been accustomed from birth to no better condition, and no greater enjoyment, they marry and raise up children in the same privation and insensibility. They have no hope, and almost no desire, to leave their children in better condition than they themselves have endured.

It is all in vain to expect, that improvement will arise out of the wants of those that need them most, that these people will either feel the desire and demand a better condition of things, or that they will have the moral or physical power to obtain it. All this must come from abroad, from the philanthropist, the political economist, and the legislative authority.

Besides the improvement of the external condition of the poor, of their streets and houses, something must be done for themselves, to elevate their character, refine their sensibilities, to give them more mental power to understand, and more moral energy to accomplish the work of improvement.

The education of the people must be coincident with draining the streets and purification of the houses.

The committee of New Castle, speaking of the most degraded and wretched of the poor, say: "After all, a long experience of the classes that generally inhabit these dreadful places, forces upon us the conviction, that it is to poverty, ignorance, vicious habits, and neglect, that the evils traced there may be generally ascribed; that such places are not bad, necessarily bad, but that they are made infinitely worse by the causes just alluded to." In reference to the worst classes of houses and the lowest inhabitants that dwell in them, the same committee state: "If such places exist not, they will make them. Place them in an airy habitation, and they will turn it into a noisome hovel. If they have drains, they wlll cause them to be obstructed; if free ventilation, they will close it up; if the clearest sunshine, they will shut it out by negligence and filth. Buckingham street, Peel street, Wall Knoll, Quay side, and Loudgate, offer ample proof of this." "The inhabitants of these places have done much, but the builders of these tenements more. To the former, may be ascribed much of the defect of ventilation and internal dirt, to the latter the want of drainage, and that mass of filth that constitutes the streets." Here then is need of education both of the builder and the tenant, in order to produce a better state of things and an improvement of the condition and health of the poor.

The poverty of the poor includes more than a mere want of worldly substance. They suffer from want of health and physical strength, from defect of intelligence, of education, and of mental discipline, and from want of encouragement of their associates to improve their condition, and from lack of ambition to elevate themselves, and taste to enjoy more comfortable and more agreeable circumstances.

Their low physical, moral and mental condition prevents their acquiring property which come to those who have higher health and more mental energy; and their external poverty deprives them of the means of health and education. Personal character and power are intimately connected with outward prosperity and adversity. The poverty of the poor and the wealth of the prosperous are self-sustaining, for "whosoever hath to him shall be given, and he shall have abundance; but whosoever hath not, from him shall be taken, even that he hath."

From these reports we are led to draw several inferences, in respect to cities.

1st. The districts inhabited by the poor and the labouring classes, are imperfectly drained and supplied with water.

2d. Their narrow streets and alleys, and closed courts admit little circulation of pure air abroad, and their small rooms and small windows allow very little ventilation within.

3d. Their air is foul abroad and corrupt within.

4th. Sickness, and especially fever, scrofula, and diseases of the digestive organs, are more prevalent and less manageable in these abodes than elsewhere.

5th. More children die, and fewer adults survive the usual period of working life, and die in old age, and the average longevity is less in cities than in the open country.

6th. Sickness and mortality are increased with the density of population.

7th. Sickness and mortality prevail much more among the poor in their ill-conditioned districts and houses, than elsewhere.

8th. The life of the poor is shorter than that of the rich.

9th. The productive power of the labouring people is diminished by their feeble and short life.

10th. The morals of the inhabitants of these bad districts are lower than in better districts.

11th. The sensibilities of the poor are blunted, so that they neither seem to feel the degradation and pain of their condition, nor have hope or courage to relieve themselves.

12. Very much of the sickness and mortality of the poor and of the prosperous is intimately connected with difference of external and internal condition, and is justly referable to removable and preventable causes.

13th. The poor having neither the will nor the power to remove these causes, it is incumbent on the public authority to do it for them, and so to regulate the streets, courts, and alleys, the drainage, sewerage, and paving, the supply of water and ventilation, that their districts and houses shall in these respects, be as healthful as those in the better parts of the city.

In view of the whole of the facts developed by this sanitary commission, and of the conclusions which are naturally drawn from them, the commissioners advise, that legislative measures be adopted for the introduction and maintenance of house drainage, sewerage, paving and cleansing, and supply of water for public and private purposes, and the adoption of other means for promoting the health of the inhabitants of all the towns and populous districts.

For this purpose they propose the following series of recommendations, which we condense from their second report.

1st. That a local administrative body, appointed for the purpose, have special charge of all these sanitary works, under the supervision of the crown.

2d. That in every city and town, a survey be made, and a plan be drawn, by a competent engineer, in reference to a uniform system of drainage, &c.

3d. That the area of drainage of every town and suburb, or collection of towns like the metropolis, or Manchester and Safford, be defined and enlarged from time to time by the crown.

4th. That the local administrative body appoint surveyors, and other officers, to carry out the sanitary measures.

5th. That the crown direct some person to examine the sanitary condition of any town, wherever there be reason to suspect any imperfection in drainage, sewerage, cleaning, paving, &c., and compel a reform if needed.

6th. That the drainage of the entire area of one locality be under a single authority.

7th. That if mill-dams obstruct the drainage of the lands, or are injurious to the health of the people, the local authority have power to purchase them.

8th. That main and branch sewers and house drains be entrusted to one board.

9th. That the cost of these sewers and drains be assessed upon the landlord, where the houses do not rent for more than 10*l*., (about $50,) or where the rent is collected oftener than once a quarter.

10th. That in other cases, the cost of sewers and drains be assessed upon the occupiers of the houses, and this be paid by instalments through a series of years.

11th. That the annual proportion of this cost to be levied may be limited; but the public authority may borrow money for immediate use.

12th. That the grading and paving streets, courts, and alleys be under the same authority, and paid for in the same way as the drainage.

13th. That the same authority cleanse all streets and privies, and have right to all dust, ashes, street refuse, night soil, &c.

14th. That collections of dung, offal, &c., be declared legal nuisances, and be removed.

15th. That the black smoke from furnaces and steam-engines in towns, be prevented.

16th. That if any inhabitants are injuriously affected by noxious exhalations from any factory, the local authorities abate the evil.

17th. That the same authority supply water to all the streets and families sufficient for domestic use, cleansing streets, scouring sewers and drains, and for the extinction of fires.

18th. That the water companies supply this water on equitable terms, and the local authority be empowered to purchase their property, if willing to sell. And that all new companies be required to sell, whenever the towns may desire to purchase.

19th. That as soon as pipes are laid down, the water rate be charged on all dwelling houses, that can be benefitted by the supply, in the same manner as the sewer rate.

20th. That ample supply of water be furnished to public baths and wash houses, for the poor.

21st. That water be constantly kept on high pressure in the main pipes, and fire plugs be inserted in the pipes, at short intervals, for the extinction of fires.

22d. That the local authority be empowered to raise money, to pay for the property and the cost of opening thoroughfares and widening streets, courts and alleys, through crowded districts, for the purpose of external ventilation.

23d. That courts and alleys be built not less than twenty feet wide, and the width of these be in proportion to the height of the houses, and that the courts have an uncovered opening, not less than ten feet wide, into the public street.

24th. That, after a limited period, cellars be not used as dwellings, unless of a fixed size and provided with a fire-place, windows sufficient, and made to open, with an open space in front, and unless the cellar be perfectly drained.

25th. That all new houses be provided with necessaries, for the inmates.

26th. That all houses for public assemblage, and especially school-houses, be properly ventilated.

27th. That the local authority require the landlord to cleanse any house or premises, which are so filthy as to endanger the health of the occupants or the public, or in which exists some infectious disorders, or do this at the landlord's expense if he neglect to obey.

28th. That this authority regulate lodging houses.

29th. That they may appoint a medical officer to inspect and report periodically upon the sanitary condition of the towns, and ascertain the causes of disease and mortality.

30th. That this authority may raise money necessary for the management and care of public walks.

We have been thus minute in our description of the present condition of some parts of some of the cities of England, because we desire that our countrymen should see and profit by foreign experience. So far as we can learn from reports, the cities of the continent are no better. They too have their narrow streets, and filthy and undrained districts, crowded houses and unhealthy and short lived population.

These are the cities of the old world. In some of them these evils have been the growth of centuries; and in all, they have had their beginning when their effect on health and life was not known or considered.

They are so firmly established in the structure of these towns, so thoroughly incorporated in the organization of society, so intimately interwoven with the domestic condition, the character and habits of the people, that it must require ages longer to eradicate them completely.

We had intended to enter into an examination of our American cities, and see how far they have fallen into, or avoided the evils which are manifested in their older sisters, and also to consider what system should be adopted, and what legislation required to prevent them from becoming, in any of their parts, the nurseries of disease and death, like some of the older towns of Europe. But having already exceeded our proposed limits, we must defer the consideration of the present and prospective sanitary condition of the American cities, and the effect of due legislative action upon them, to a future number of the Journal. E. J.

Art. XIV.—*A Treatise on the Structure, Diseases, and Injuries of the Blood-vessels, with Statistical Deductions; being the Essay to which the Jacksonian Prize, for the year* 1844, *was awarded by the Royal College of Surgeons of England. With numerous additions.* By Edward Crisp, M. R. C. S., Member of the Council of the Pathological and Medical Societies of London, &c. &c. John Churchill, London, 1847. 1 vol., 8vo., pp. 354, with Plates.

Some thirty-six years have now elapsed since the College of Surgeons of England, awarded the Jacksonian Prize to Mr. Joseph Hodgson, for his invaluable essay on the diseases of the blood-vessels, and nothwithstanding the great additions which, during this period, have been made to our knowledge on this subject, until the publication of the volume before us, no complete treatise had appeared.

The council of the college, doubtless deeming it a fit time for taking a retrospective view of what has been accomplished in this branch of pathology, selected as the subject of the Jacksonian Prize for 1844, "The Structure and Diseases of the Larger Blood-vessels." Mr. Crisp proved the victor in a contest which has often enlisted some of the most learned of the profession in Great Britain, and we feel persuaded that no one will rise from the perusal of his essay without being satisfied that in this instance at least, the prize has been not unworthily bestowed. Coming to us too, as it does, stamped with the seal of approbation of that renowned body, it presents strong claims to our attention.

In the study of the part of this volume devoted to that most important class of the diseases of the blood-vessels, *aneurisms*, we think the surgeons of our country must take a lively interest, for although *external* aneurisms are, perhaps, not so frequent here as in Great Britain, yet we know that to American surgeons is due the honour of having *first* attempted, and of having *first* executed too, some of the most daring feats which have ever been undertaken on the arterial trunks. In the history of these operations the names of Post, Mott, Warren, Gibson, J. Kearny Rodgers, White, &c., are entitled to a conspicuous place, and must receive, as they deserve, the admiration of every lover of our noble art.

Mr. Crisp states in his preface, that during the interval which passed from the time the original essay was written in 1844, till its publication, 1847, he had obtained much additional information, both from personal observation, and the recorded experience of others, and that for any errors in the matter subsequently added, the adjudicators must not be held responsible. Entertaining the opinion that the statistical is the only sure method of arriving at accurate deductions in medical inquiries, he has framed a table of aneurisms, "the largest yet published, formed by taking impartially *all* the cases from the *British* medical journals." Though this table may contain a few inaccuracies, still with so large a mass of evidence, he thinks the deductions must in the main be correct. He has avoided multiplying cases from foreign journals, for two reasons:—first, he believes the table to be sufficiently large for the purpose of useful deduction; and secondly, because the different modes of operating in different countries, as well as the difference of climate, might invalidate his conclusions. However true these may be, we cannot but think that it would have materially enhanced the value of a work aiming to be a complete treatise, had he collected, though in a separate table, the cases that have been recorded, both on the continent and in our own country. Another fault with which this table may justly be charged, and which detracts greatly from its utility, is the want of some classification of the cases. The collection as it exists embracing some 551 in number, must have been attended with great labour, and the table, with all its defects, must prove very acceptable to those who are denied access to the British medical journals, and to the published transactions of the different medical societies of Great Britain. The work is illustrated by several plates, with more than twenty figures of specimens, which, with but four exceptions, were prepared by the author himself.

Chapter 1st treats of the structure both of arteries and veins.

Having noticed the various opinions which prevail respecting the structure of arteries, our author observes, that from the very careful examination of a great number of arteries, both healthy and diseased, taken from subjects of various ages, he has been able to recognize but four coats: 1st, the internal, or serous; 2d, the subserous, or tunica cellulosa of Haller, or sclerous of Malgaigne; 3d, the fibrous; and 4th, the cellular. We believe that most microscopists with Henle, make six coats. Mr. Wharton Jones, in a lecture on this subject during the past winter, which the writer had the pleasure of hearing, made the same division. Mr. Crisp is disposed to think that the microscope has assisted us but little in clearing up the many disputed points respecting the structure of the arteries. Thus two experienced microscopists with whom he is acquainted, declare that muscular fibres may be distinctly recognized in some arteries, whilst a third of equal experience has never been able to detect them. Our author has instituted numerous experiments upon the arteries of man and the inferior animals, to ascertain the amount of physical elasticity which they possess. The arteries, which were taken from subjects under forty years of age, were extended upon a board by means of pins, and covered with a moist cloth. The following are specimens:

> "Exp. 1st. Twelve inches and a quarter of the aorta (from the arch to the bifurcation) were extended to eighteen inches; after twenty hours the pins were removed, and the tube resumed its former length."—p. 5.
>
> "Exp. 9th. Thirteen inches of the aorta of a horse, extended to nineteen inches and kept moist for a fortnight; on removing the nails it contracted to fifteen inches and a quarter."—p. 6.

The results of these experiments are at direct variance with the opinions of John Hunter, Soemmering, Thompson, and other physiologists who believed in their muscularity.

> "The increased throbbing in whitlow and other local affections, affords an argument which has been frequently used in favour of their muscularity. This phenomenon, I think, admits of a very easy explanation. In inflammation, the blood, in many of the capillary vessels, is obstructed in its course, and the *vis a tergo*, produced by the contraction of the left ventricle, as well as by the elasticity of the arterial tunics, being the same in all the branches, it naturally follows that the arteries on the cardiac side of the obstruction, should be more distended. A good example of this is seen in the throbbing arteries of a stump after amputation. The prevailing opinion that more blood passes through an inflamed part, I believe to be erroneous."

With regard to the structure of the veins, there is nothing in Mr. C.'s observations calling for especial notice.

The morbid conditions of arteries, form the subject of the next chapter. Instead of this division, which seems altogether too indefinite, we think Mr. C. might, with more propriety, have adopted that of discoloration of the arterial coats.

Our author endeavours to point out certain marks by which the different forms of discoloration may be distinguished. He divides these into the inflammatory, the congestive, and into that which has been denominated redness from imbibition. A table of 102 cases is given, in which he has examined the large arteries of the chest and abdomen, but we will not now enter into this matter in detail, as we shall be compelled to notice the characteristics of each of these abnormal conditions, in our analysis of the third chapter of Mr. Crisp's essay, which treats of the important though obscure subject of *arteritis*. To this he has devoted some forty-four pages, and as it involves the consideration of the pathology of that peculiar loss of vitality in the extremities called *dry gangrene*, we shall aim to furnish the reader as completely as possible with the views of our author on this point.

> "Exposure to cold, adynamic fevers, rheumatic metastasis, extension of endocarditis, the sudden disappearance of cutaneous eruptions, the use of deleterious food, and ardent spirits, blows and injuries of various kinds, including surgical operations, the pressure of tumours, and the presence of bony spiculæ in the vessel, may be enumerated among the chief of the predisposing and exciting causes both of acute and chronic arteritis."—p. 24.

Speaking of aortitis, Mr. C. observes, that its signs are so various, and its complication with heart disease so frequent, that we can scarcely hope to arrive, in the majority of cases, to a correct diagnosis. With regard to the morbid anatomy of this affection, Mr. C. believes that the only changes which can be depended upon as indicative of inflammation, are, redness, and a pulpy and swollen appearance of the inner and middle tunics. This last condition of the inner and middle coats, together with the fact that the colour is not removed by immersion in water or spirit, he regards as the best distinguishing marks between the inflammatory redness, and that which has been denominated redness by imbibition. Respecting the congestive form of redness, which some pathologists have classed under the head of inflammation, he is of the opinion, that so long as the boundary between these two morbid states remains undefined, we can scarcely expect that the conflicting opinions which are at present entertained can be reconciled.

The greater calibre of the aorta, together with the increased impetus of the blood in this vessel, is the reason why coagulable lymph is less frequently deposited in this vessel than in the smaller arteries. He has given a table of seventeen cases, however, in which the thoracic aorta was found completely or partially contracted and obliterated, and what is very singular most of those affected with this abnormal condition of the aorta, suffered but little inconvenience; one of them indeed lived to the age of ninety-three. Mr. C. observes that there are no signs by which this state of the aorta may be detected during life.

He has found three preparations at Guy's Hospital, where the abdominal aorta was obliterated by fibrinous coagula. In one of these, the obstruction was situated (extended) above the diaphragm; in another, near the cœliac axis; and in the third, above the bifurcation of the aorta. After referring to the case where the aorta was obliterated near its bifurcation, reported by Sir Philip Crampton, in the second volume of the *Dub. Hosp. Reports*, he makes mention of the examples of total obliteration recorded by Louis, Bougou, Desault, and Duncan. Although these coagulations do sometimes arise from inflammation, Mr. C. is inclined to think they may occur from deficiency in the heart's action, combined with a roughened and diseased state of the coats of the aorta.

A very interesting paper on spontaneous gangrene of the lower extremities, arising from the formation of coagula in the lower part of the abdominal aorta, &c. &c., was read before the Royal Medical and Chirurgical Society of London, in February, 1847, by Dr. Henry W. Fuller, one of the medical officers at St. George's Hospital, and a young gentleman of great promise in his profession. Dr. F. admitted that arteritis and osseous deposition might give rise to this obliteration of the blood-vessels, but he believed that it is not unfrequently due to the peculiar condition of the blood itself, and that the partial ossification of the vessels, occasionally met with, accompanying mortification, should, in most cases, be regarded as a simple coincidence, and not as the cause of the formation of coagula. The substance of this paper, and the discussion to which it gave rise, may be found in the *London Med. Gazette*, for July and August, 1847, and will amply repay for a perusal.

Mr. C. does not coincide with the opinions of Dr. Carswell, Sir Benjamin Brodie, Mr. Hodgson, Sir Charles Bell, and other pathologists, who believe that dry gangrene is the result of debility, that it is peculiar to persons advanced in life, "and occasioned by morbid states of the arterial system, which occur only in such persons, at least to such an extent as to produce local death." After referring to the researches of Messrs. Hourman and Dechambre, at the Salpêtrière, which go to show that inflammation is the most frequent cause of death in old persons, Mr. C. asks, "How often are the aged affected with cutaneous inflammation, and reasoning from analogy, why may not the internal coats of the *arteries* be subject to the same engorgements?" He awards to Dupuytren the merit of having first pointed out the true pathology of this disease, and adduces the evidence of Mr. Syme and Mr. Liston as recorded in the *Edinburgh Monthly Journal*, for Jan., 1841, and March, 1845, to prove that the antiphlogistic is by far the most efficient method of treating dry gangrene. He quotes also from Pott to show that even in his hands, bark proved to be entirely useless, and that he preferred the use of opium, and soothing to stimulating applications.

> "I have paid much attention to this complaint for many years, and have had an opportunity of inspecting the bodies of several who have died of it. I have invariably found the lining membrane of the artery of a red appearance, the vessel is often obstructed by fibrinous coagulum, some distance above the gangrenous part, as well as in the arteries near the seat of the disease."—p. 33.

Dr. Carswell declares that he has never seen this affection in young persons, but Prof. Tiedemann* asserts that it may happen as well to the young as to the aged of both sexes. He distinguishes two kinds of *dry gangrene*, where occlusion of the arteries exists:—1st, *dry gangrene*, in consequence of acute *arteritis*, pursuing a rapid course, making rapid progress, mostly with symptoms of typhus fever, and killing sometimes in a few days; 2d, *gangrena senilis*, which runs a chronic course. He considers amputation to be useless in both forms of the disease, and especially in that which takes place from arteritis. Mr. Crisp, however, regards the operation in the young, for the most part, justifiable, when the collateral branches are sufficiently enlarged to carry on the circulation, and when a line of demarkation is formed between the living and dead parts. He relates four cases which serve to strengthen his opinion.

Case I. he regards as the most extraordinary on record. Arteritis of an acute character existed in the axillary and femoral arteries of both extremities, producing a deposit of lymph, with total or partial plugging of the vessels. The patient, a female, was but 22 years of age, and, contrary to the advice of several professional friends, who believed that there would not be a sufficient supply of blood to heal the wound, Mr. Crisp determined to operate. The fore part of the left foot was in a state of sphacelus, with a red line of demarkation extending obliquely across. The little and great toes of the right foot were black and painful.

On the 16th Feb., 1835, he removed the phalanges of the two outer toes of the left foot. During the greater part of the following summer her health had somewhat improved, but on the 1st Oct. no pulsation could be felt in the left femoral artery from two inches below Poupart's ligament, whilst in the right it could be detected as low as the triceps. She had lost the first phalanx of the great and little toes of the right foot; all the phalanges and three of the metacarpal bones of the left, and the two remaining were partly exposed. A portion of the os calcis on each side had exfoliated, the foot was much inverted, the integuments painful on pressure; the skin assumed a leaden hue, &c. &c.

On the 5th, he removed the leg below the knee. On slackening the tourniquet, there was but little bleeding from the large arteries, and it did not come *per saltum*. The smaller vessels bled profusely, and nine or ten of them had to be tied. On examination the only traces of disease to be found in the arteries were, that they were smaller than natural; the veins and nerves were healthy. The stump remained in an indolent state for a long time, but at the end of ten months it became perfectly cicatrized, and she was soon able to use a wooden stump. When seen in Oct. 1846, eleven years afterwards, she was robust in appearance, but no pulsation could be detected in the brachial, axillary, the right popliteal, or tarsal arteries.

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* See *Ed. Med. and Surg. Journal*, for Jan. and April, 1847; also *Ranking's Abstract*, No. 1, vol. ii.

We have not space to notice the remaining thirteen cases which Mr. C. has recorded, in some of which the operation was followed by success, but must refer the reader to the work itself. The question is one of interest, whether, in the majority of cases, the coagulation of blood, which Cruveilhier believes to be the essential characteristic of arteritis, is produced by inflammation, or whether it may not frequently depend upon an altered condition of the blood itself, as suggested by Mr. Paget in his paper on obstructions of the pulmonary artery, in the 27th and 28th volumes of the *Med. Chir. Transactions*, or as maintained by Dr. Fuller, in the case to which we have already alluded. One thing is certain, that the etiology of this peculiar kind of mortification is still unsettled, and knowing as we now do, from the case reported by Mr. Solly in the 22d vol. of the *Med. Chir. Trans.*, where it occurred in a boy three years of age, and from numerous others on record, between this period and forty years of age, that it may happen at any period of life, it would be irrational to expect that the same treatment should be adapted to each of these diversified conditions.

To show that no age is exempt from the attacks of this disease, we insert the table of cases collected by Dr. Hecker, of Stuttgart, (*Brit. and For. Med. Rev.*, vol. xiv. p. 86,) to which Mr. Crisp makes no reference.

1 between 1 and 10 years
6 " 10 " 20 "
7 " 20 " 30 "
9 " 30 " 40 "
1 " 40 " 50 "
12 between 50 and 60 years
19 " 60 " 70 "
3 " 70 " 80 "
8 " 80 " 90 "
1 " 90 " 100 "

Total 67

Respecting the propriety of amputation, we have the testimony of Dr. Mott, (see *Mott's Velpeau*, vol. i. p. 44,) that in his hands it has succeeded in two out of three cases. M. Velpeau admits that in two instances where he resorted to operation, both patients died, but asserts that M. Champion has communicated a case to him where he was successful, although the patient was about sixty years of age, and from his observation on the subject, (vol. ii. p. 445–6,) it would seem that the proportion of successful cases after amputation is greater than has been generally supposed, and that contrary to the opinion of Mr. Crisp, Mr. Samuel Cooper, and other surgical writers, it is not necessary that we should wait until a line of demarkation is formed between the dead and living parts.* With regard to medical treatment, Chelius has shown (vol. i. p. 112,) that even in the aged, by proper support of the powers, the slough may separate, and the stump become healed.

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* For an interesting examination of this question, see the paper of Dr. Fuller, already mentioned. As a further proof, however, that we may sometimes operate with success, even while the gangrene is spreading, we may mention that Prof. Parker (see *Cooper's First Lines*, by Parker, vol. i. p. 91, Case 1st) operated under such circumstances, and some ten years after, the patient was in perfect health. Although the fact is not noticed in the work referred to, that the operation was performed before a line of demarkation had formed, yet that such was the case, the writer has been informed by Prof. P. himself.

Passing over chapters 4th, 5th, and 6th, which treat of arterial deposits, diseases of the aortic valves, and absence of the pulmonary artery, we come to chapter 7th, on abdominal pulsation. Mr. Crisp, with Dr. Baillie Faussett, Stokes, &c., regards this affection of the aorta as sympathetic in its most frequent form, but believes that it can only take place when the parieties of the vessel are in a weakened condition, from structural defect, or derangement of the nervous influence. "If functional disorder, or structural lesion of the stomach alone," he observes, "would produce inordinate pulsation in a healthy artery, these cases, instead of being rare, would be of daily occurrence." Mr. C. makes three divisions of this pulsation. The first depends upon constitutional causes, such as chlorosis, hysteria, anemia, from loss of blood, &c., in short, any state of system inducing an impoverished condition of the circulating fluid, or derangement of the nervous functions.

Mechanical obstruction is the chief cause in the second variety. The most frequent of these causes, are tumours of various kinds pressing upon the vessels, such as enlarged pancreas or spleen, scirrhous stomach, diseased mesenteric glands, and collections of scybalous matter in the bowels.

The last and most frequent variety is that to which we have already alluded, viz., the sympathetic.

In the diagnosis of this disease from aneurism, he considers that the sex, together with the previous history of the patient, may afford us great assistance; thus, if the patient be a female, the chances will be against the existence of an aneurism. In his table embracing fifty-nine cases of aneurism of the abdominal aorta, only eight females were affected.

In his treatment, there is nothing calling for especial notice, this, of course, having reference to the cause.

Five cases are given in detail, some of which Mr. C. regards as casting some doubts on the diagnostic mark of abdominal aneurism, to which Dr. Corrigan, of Dublin, attaches so much importance, viz., the disappearance of the bellows sound in this disease, when the patient is made to assume the erect position, as in some instances, when the patient stood erect, this sound was no longer heard. In one of these, the autopsy revealed, instead of an abdominal aneurism, a lardaceous, cancerous tumour, which was situated over the aorta, which was of its natural calibre, and quite healthy. In another, though the bellows sound was very loud in the recumbent posture, and became inaudible when the patient stood erect, though the existence of aneurism was at one time suspected, at the time of the report Mr. C. says it was very improbable, the sound having disappeared, and the patient being in good health.

Aneurisms.—Chapter 8th commences what, in our opinion, constitutes by far the most useful and interesting portion of Mr. Crip's volume, the consideration of the pathology and treatment of aneurisms. Our author appears to have bestowed upon this part of his essay much labour, and with the table at the conclusion of his remarks, comprising, as we have already stated, 551 cases, taken from the British journals, it furnishes us with a complete summary of what has been done in this department of surgery in the Island of Great Britain.

The present nomenclature of aneurisms, Mr. C. considers faulty, but is at a loss to substitute one which would be free from objections.

"If the term endogenous were substituted for that of spontaneous, when speaking of aneurisms which arise from lesions of the inner coats; and the term exogenous or traumatic applied to those which are produced by external division of the arterial walls, I think the nomenclature would be more appropriate. The various names before alluded to might still be retained, to distinguish the varieties of aneurism. To prevent confusion, however, I shall continue to employ the terms now in use."

Mr. C. defines an aneurism to be a pulsating elastic tumour, containing fluid or coagulated blood, arising from a simple dilatation of the whole, or a part of the arterial parietes. The form of the sack may be globular, oblong, fusiform, tubular, pyramidal, peduncular, irregular, bisacular, or it may assume any variety of shape; this depending, in a great measure, upon the calibre of the vessel, and the support or resistance of the surrounding parts.

After quoting the opinions of Hodgson, Lawrence, Baillie, Hooper, Lisfranc, Phillips, Chomel, and Mr. Wardrop, to show how variously estimated by writers, is the comparative frequency of aneurism in different arteries, he gives a summary of the 551 cases in his table of aneurisms, which we subjoin.

Situation.	No. of Cases.	Situation.	No. of Cases.
Thoracic aorta	175	Innominata	20
Pulmonary	2	Carotid	10
Abdominal aorta and branches	59	Cerebral	7
Common iliac	2	Temporal	1
External iliac	9	Ophthalmic	1
Gluteal	2	Subclavian	23
Femoral	66	Axillary	18
Popliteal	137	Subscapular	1
Posterior tibial	2	Brachial	1
		Total	551 (p. 113.)

Mr. C. has given a plate of an "arterial tree," on which the figures indicate the orders of frequency of the different situations of aneurisms.

Respecting the *causes* of aneurism, Mr. C. observes:—"In reviewing the foregoing localities of aneurism, this inquiry naturally presents itself, viz.: Are the arteries in these situations most subject to disease? After a very careful investigation, I have come to the conclusion, that the various deposits are less frequent in the arteries most affected with aneurism; for example, the ascending aorta and popliteal arteries (the most common seat of aneurism), are not oftener diseased than the descending thoracic, the lower part of the abdominal aorta, and the iliacs, where the disease is comparatively rare. I must, therefore, infer that these deposits are less concerned in the production of aneurism than is generally supposed; and that mechanical causes afford a more probable explanation." p. 115.

Males are much more frequently affected than females, the proportion of the latter in the 561 cases, being as 1 to 8, and this is supposed to be owing to the difference in the nature of their occupations. This opinion, Mr. C. thinks, is strengthened by the fact that in females who have their necks exposed, and who are consequently more subjected to violence, carotid aneurism is nearly as frequent as in males. The collection of cases made by Dr. Norris in the July number of this Journal, do not support this opinion. Thus of 38 cases of carotid aneurism, 27, or more than two-thirds, were males, whereas of 25 cases in Mr. Crisp's table 12 were females.

Age.—It will be seen by the following table that aneurism occurs most frequently at that period of life, when it can hardly be supposed that they are the subject of that osseous deposition which occurs so often in old age, and that after sixty it is comparatively rare.

Age.	No. of Cases.	Age.	No. of Cases.
Under 10 years of age	1	Between 50 and 60	65
Between 10 and 20	5	" 60 " 70	25
" 20 " 30	71	" 70 " 80	8
" 30 " 40	198	" 80 " 90	2
" 40 " 50	129	" 90 " 100	1
		Age not stated	46
		Total	551 (p. 113.)

He does not agree with Mr. Porter respecting the influence of mercury in producing this disease, whilst he thinks that the agency of laborious occupations has been undervalued by the Irish surgeons.

Climate.—Aneurism is supposed to be more frequent in England than in any other country. From 1838 to 1842, the number of deaths from this cause in England and Wales was 593, making an annual average of 1 in every 131·580 of the inhabitants. Mr. C., however, thinks that less is to be attributed to temperature, than the habits of a people, and he very properly observes, that from the above returns, no estimate can be formed of the prevalence of external aneurisms, as they are generally cured by operation.

"Next to England," observes Mr. C., "this disease is probably more prevalent in the United States of America, where the habits of the people in some measure resemble our own." This opinion, he says, is formed from the number of recorded cases, and he quotes from the "*Annales de la Chirurgie,*" 1841, where it is stated that Dr. Mott is reported to have tied the femoral artery 49 times, the common carotid 19, and the external iliac 6. Some difference of opinion seems to exist among the surgeons of our country respecting the frequency of aneurisms here. Prof. Gibson believes that in New York, the residence of so many foreigners, aneurisms are almost exclusively confined to them, especially to the English. Dr. Mott, on the other hand, declares that the great majority, if not all the cases which have occurred in his practice for near forty years, have been among his *own countrymen!* Indeed, he says, he cannot recollect a single instance of a foreigner, and that nearly all belonged to that class who had been accustomed to hard labour.

Dr. Gibson informs us (see *Gibson's Surgery*, vol. ii. p. 395), that so rare are femoral aneurisms in the United States, that Dr. Physick never operated more than five times, and that Dr. Warren has had occasion to tie the femoral but four times for aneurism, and twice for wounds. He himself has operated only some six or seven times, whilst Dr. Mott now boasts of fifty cases, forty-eight of which have been successful! Dr. J. Kearny Rodgers, of New York, during the past summer, informed the writer that he had tied the femoral artery, we think, thirteen or fourteen times, which, with the experience of Dr. Mott, would go to prove that these cases are more frequent in New York than in any other part of the United States. Perhaps, however, as Dr. Gibson has stated, Dr. Mott's reputation has attracted many cases from other parts of the country, thus accounting in part for the disproportionate number of patients who have resorted to that city.

Mr. C. quotes from M. Roux and M. Malgaigne, to prove that this affection is less frequent in France than in England, and from the number of cases reported by Scarpa in his work on *Aneurisms,* and from the remarks of Dr. Oppenheim, in the 26th vol. of the *Ed. Med. and Surg. Journal,* he argues that it cannot be very frequent in Italy.

> "The Roman surgeons have hitherto never attempted to tie the artery in this disease, but proceed at once to amputation, when Valsalva's method fails! and yet Rome is scarcely three days' journey from the residence of Scarpa!"—p. 120.

Internal aneurisms.—Under this head Mr. C. includes those only which are not within reach of surgical operation. Of 243 cases of this form of aneurism, 175 were in the thoracic aorta, 59 in the abdominal and its branches, 2 in the pulmonary, and 7 in the cerebral; of these, 198 were males, and 45 were females.

The greater number of the cases of thoracic aneurism occurred in persons between thirty and fifty years of age, although a considerable number took place in those between fifty and seventy.

After alluding to the great difficulty which exists in detecting those cases where no external tumour is present, Mr. C. believes that a correct diagnosis may be made by a careful investigation of the past and present symptoms, and the habits of the patient. Speaking of the physical signs, he observes, that he is not disposed to attach much importance to the *bellows-sound*, as the sounds of the heart are often heard over every part of the chest, and in some delicate females, almost as distinctly in the neck as when the stethoscope is applied to the cardiac region. In several cases which he has examined, he declares he has not met with the same sounds in any two instances. In a small aneurism containing but little coagulum, he thinks this sound is generally heard, but in those of large size, filled with coagula, it is often absent. To show that the existence of a tumour pulsating externally, does not always indicate the presence of an aneurism, he refers to a case of supposed aneurism of the ascending aorta, which he was requested to see by a medical friend. "There was a pulsating tumour on the right and upper part of the sternum, and without having recourse to auscultation, I came to the conclusion that it was aneurismal. I saw the patient a few weeks afterwards; a large quantity of pus had been discharged from the tumour, and she perfectly recovered." He also alludes to the case of pulsating empyema, reported by Dr. McDonald, in the 25th vol. of the *Dublin Journal*, as illustrative of the same point. Contrary to the opinion of Hodgson, Laennec, Hope, and others, Mr. C. believes that rupture into the pericardium is the most frequent termination of aneurism of the ascending aorta.

Treatment.—This differs but little from that usually recommended. Digitalis, with Mr. Cheever, he thinks, should be given with great caution, as internal aneurism is frequently complicated with disease of the heart. In two instances he has seen great apparent relief from the constant application of cold lead lotions to the tumour. Another patient of his, who suffered excruciating pain in the right arm and shoulder, found great comfort from sprinkling the raw surface produced by a small blister, with the hydrochlorate of morphia. The treatment by Valsalva's method does not receive his approbation. The history of twelve cases is given in detail, which although of much interest, and of a practical bearing upon the subject, we have not space to insert.

Aneurism of the abdominal aorta are very briefly considered in the next chapter. Of 54 cases, only 8 were females, and the greater number were between 40 and 50 years of age.

The diagnosis is less difficult than in aneurisms of the thoracic aorta, the pulsation being generally more distinct, and accompanied with a bellows sound, although in some instances it is not heard. In aortic pulsation, abnormal sound is seldom present. Again, in abdominal aneurism, the impulse is mostly heaving and confined; in aortic pulsation free and bounding. The direction of the sac in the former is generally lateral or posterior, and the tumour is seldom distinctly felt when seated near the cœliac axis, &c.

Terminations.—Of the 59 cases, 11 opened behind the peritoneum, 5 into the left pleura, 3 into the vena cava inferior, 1 into the lung, 1 into the colon, 1 into the pelvis of the kidneys, 1 into the posterior mediastinum, 1 into the chest, 2 died suddenly, without rupture of the sac, 2 from jaundice, and 9 from heart disease, scarlatina, phthisis, diarrhœa, exhaustion, hydrothorax, anasarca, and ascites, senile gangrene, and rupture of the sac by vomiting. The terminations of the remaining twelve are unknown.

Treatment.—This should not differ materially from that for aneurism of the thoracic aorta.

Chapter 10th treats of *Cerebral Aneurism.*

Mr. C. has collected eight cases, all of which were males. Five were seated in the basilar, and three in the cerebral arteries. The aneurism varied in magnitude from a pea to a common sized apple. Rupture of the sac, and extravasation of blood took place in the three seated in the cerebral arteries; of those affected with basilar aneurism, sanguineous apoplexy, cerebral congestion, encephalitis, hemiplegia, and pressure on the medulla oblongata, were the causes of death. In one of his patients who had died from apoplexy, Mr. C. removed the vessels at the base of the brain, but did not discover the aneurismal dilatation till the next day, when he was making a careful examination of the arteries, and he thinks it very probable that many of these aneurisms have been overlooked in a similar manner, especially when they have been of small size.*

Plate 4th, Figs. 5 and 6, represent two specimens in his collection.

Chapter 11th, *Dissecting Aneurism.*

Of the 21 cases recorded in the table, two-thirds were females, and the greater number occurred in persons between 50 and 80 years of age. The lower part of the ascending aorta is the most common seat of these ruptures, and the blood is generally discharged into the pericardium. In this manner, 15 of the 21 cases terminated, whilst four died of senile gangrene, tuberculated lungs, dropsy, and orthopnœa; in two cases, cause of death was not given.

> "The dry state of the arterial tunics in old persons, producing loss of cohesion, appears to be the chief predisposing cause of these ruptures, and the unyielding condition of the cellular coat in the aged, may be another reason for their more frequent occurrence at this time of life. If the rupture took place in a healthy

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* For the account of a very interesting case of basilar aneurism, by D. Ruschenberger, U. S. N., see *Amer. Journ.*, Jan. 1846, p. 64. Dr. Mott erroneously states this to be the only well authenticated case on record (see *Mott's Velpeau*, vol. ii. p. 373); now the case detailed by M. Velpeau himself, in vol. ii. p. 221, taken from the account of H. G. Pfeufer, in the *Archives Gén. de Med.*, July, 1844, p. 360, et sequent. and the five cases recorded by Mr. Crisp, in his table of aneurisms, prove most conclusively that the above statement is unfounded. Of the five cases in Mr. Crisp's table, one was attended by himself, one is reported by Dr. Kingston in vol. lvii. of *Ed. Med. and Surg. Journal*, one by Mr. Smith, in vol. xxv. of *Dub. Journal*, one by Dr. Bright in *Lond. Lancet*, 1829, and another by Mr. Jennings in the same journal for 1833. Two cases are also noticed in the number of this Journal for April, 1847, p. 432.

artery, the result would probably be the formation of a false aneurism, instead of the one in question."—p. 169.

Mr. C. makes no allusion to the opinions of Dr. Pennock, who from the examination of several specimens of this disease, came to the conclusion, that, in cases of any considerable extent, the blood will be found between the laminæ of the middle coat, instead of between the middle and external coats, and who thus explains how the external coat, aided by the greater firmness and elasticity of one of the laminæ of the middle coat, resists the force of the circulation. Mr. C. has performed numerous experiments which go to prove that from the increased dryness of the arterial tunics in the aged, their connecting media may be readily destroyed. He states that if the nozzle of a small syringe filled with water be inserted into the layers of the fibrous coat, or between it and the cellular coat of an artery taken from an old subject, the fluid will be injected a considerable distance between the tunics. From his experiments, also, he is disposed to think that an artery containing a large quantity of bony and atheromatous matter, is not so likely to be affected with this form of aneurism, as one which is nearly free from deposit, the adventitious substance, in his opinion, tending rather to prevent the splitting of the coats.

We come, in the next place, to the consideration of external aneurisms, or those which are within the reach of surgical treatment. In the commencement of this chapter, Mr. C. states, that, after what has been done by Cooper, Scarpa, Hodgson, Velpeau, Liston, Porter, Guthrie, and others, he deems it unnecessary to give an account of the various methods of performing the operations for the ligature of arteries, and contents himself with a few observations respecting the great decrease of mortality from external aneurisms which has taken place since the introduction of the Hunterian operation. He quotes from Pott, Deschamps, Sir Everard Home, to show that, previous to the introduction of this method, so unfortunate were the results attending the old operation for aneurism, that by many amputation was deemed the better plan in all such cases.

Respecting the comparative merits of Anel, Desault, and Hunter, Mr. C. remarks, "Hunter may have benefited by the labours of other surgeons, but I must express my belief that to him the chief praise is due." Mr. C., however, admits that his own countrymen may have been too lavish in their praises of Hunter, who, like most other discoverers, probably profited by the communications of his cotemporaries and predecessors.

Diagnosis.—Although less difficult than in aneurism of the aorta, many errors have been committed, especially by the older surgeons, before the exploring needle was resorted to, a proceeding now not unfrequently employed in obscure cases. For a striking illustration, however, that even with the aid of this instrument, we may not be able to discriminate between an aneurism and a malignant tumour, see *Mott's Velpeau*, vol. ii. p. 284. Still tumours of various kinds have been mistaken for aneurisms, and Mr. C. mentions the case in which Mr. Guthrie, with the concurrence of Sir Astley Cooper, Mr. Keate and Mr. Thomas, tied the common iliac for supposed aneurism of the external iliac, when the autopsy revealed, instead of an aneurism, a malignant tumour. Mistakes have also been made by Mr. Earle, Mr. Eccles, Mr. Macmanus, Dr. Nichol, Mr. Lawrence, Mr. Stanley, and Mr. Baker, of Newcastle, all of which are referred to by Mr. C. for the purpose of showing that the best surgeons may be deceived in their diagnosis. With regard to the *bellows sound*, as a sign of external aneurisms, considerable diversity of opinion seems to prevail. This sound noticed by

Ambrose Paré, Petit, and several of the older writers, is by some modern surgeons, Mr. Guthrie, *e. g.*, deemed most decisive in cases of a doubtful character, but from the remarks made by Mr. Fergusson and others after the reading of a paper before the *Roy. Med. Chir. Soc.*, of London, March 11th, 1845, in which is detailed the account of a case where Mr. Stanley tied the primitive iliac for a pulsatory tumour of bone on the ilium, when the bellows sound was present, it would seem that but little value is to be attached to this sign in the diagnosis between aneurism and the *pulsating tumour of bone.*

Dr. Mott (see his edition of *Velpeau*, vol. ii. pp. 284, 372), is very decided upon this point, and the case which he reports, and which excited considerable interest in New York, some three or four years since, is by no means calculated to enhance the value of the *bellows sound*, as a sign of aneurism. Mr. Crisp observes, that, although the bellows sound is generally present in external aneurism, there are many recorded cases in which it has not been detected. In very large, or in very small aneurisms, it may be absent, and if diffused, it may not be discovered. He relates a case of aneurism of the posterior tibial artery, under the care of Mr. Tyrrell, at St. Thomas' Hospital. A woman, æt. 20, had a pulsating tumour in the lower part of the ham, about the size of a small orange; pulsation feeble, but the bellows sound distinct over the swelling. Mr. T.'s colleagues, probably influenced by the age and sex of the patient, thought it was an enlarged bursa in contact with the vessel. Mr. T. tied the femoral, and the girl perfectly recovered.

We pass over the subject of aneurismal diathesis, termination of external aneurisms, and reach that part of the essay in which is discussed the treatment by pressure. The cases up to the present time by this method are so numerous, and the success which has been attained so great, as to justify in a measure the expectations of those who believe that in the cure of popliteal and femoral aneurisms, the use of the ligature will seldom be resorted to.

After giving a condensed history of this method from Guattani, to the revival and modification of the practice by the Dublin surgeons, Mr. C. observes:

> "I have no doubt, but that this method of treating aneurisms of the femoral and brachial arteries, will, after a few years, be universally adopted, and a surgeon will not consider himself justified in using the knife until pressure has had a fair trial. The danger attending it is so slight, that I am not aware of any recent instance in which any untoward symptoms have occurred."—pp. 185–6.

After briefly noticing the arguments for and against this method, he states, that it is probably not likely to offer much chance of success, in aneurism of the iliacs, or the branches from the arch of the aorta. In large aneurisms at the groin, where it is impossible to place a ligature between the tumour and the heart, Mr. C. would advise the application of Signoroni's tourniquet to the lower part of the artery, whilst gentle and gradually increased pressure might be used upon the tumour at the same time by means of the elastic wire truss. This plan, he thinks, holds out a better prospect of cure than Brasdor's operation.

Thanks to the genius of one of our own surgeons, this is now no longer a matter of mere opinion. In the Boston Medical and Surgical Journal, for December, 1845, Dr. Middleton Goldsmith, Professor of Surgery, in the Castleton Medical College, has demonstrated that in cases similar to those referred to by Mr. Crisp, compression of the artery on the distal side, where there is no important branch between the cardiac extremity and the tumour, may suspend the circulation in an aneurism, lead to the formation of a coagulum and obliteration of the artery, and thus effect a cure. Although the case so successfully treated by Prof. Goldsmith, was one of axillary aneurism, it is difficult to see why the same brilliant result might not be attained in aneurisms at the groin.

Having alluded to the various instruments which have been used for the purpose of compressing the artery, by Morell, Hunter, Sennfio, Dupuytren, Oke, Liston, Allen, Hutton, Signoroni, and others, Mr. Crisp states, that, in his opinion, the best instrument is a half cylinder of wood, which partly embraces the limb; two or more wooden screws are applied to the artery, and by this means the points of compression may be altered when necessary.

It is somewhat surprising, that in his history of the treatment by compression, Mr. Crisp should not even mention the name of Mr. Bellingham, to whom we are so much indebted for pointing out the true principle according to which this method should be conducted, and to whose work we must look for the most valuable remarks on this plan of treatment which have yet been published.

Respecting galvano-puncture, so strongly recommended by M. Petrequin of Lyons, our author is not disposed to form a very high opinion. The fact that it is liable to produce inflammation, not only of the integuments, but of the sac itself, as proved by the history of a case of carotid aneurism, in the *Annales de Thérapeutique*, of Feb. 1847, which terminated fatally under this treatment will be likely to prevent its very general adoption.

Operation.—On this subject, Mr. Crisp observes:

> "It is often a very nice point to decide what amount of disease shall preclude the performance of the operation for aneurism. I think that many surgeons have been too careful on this point, and it is questionable, whether a suspected aortic aneurism should debar the use of the knife, (I speak of instances where pressure cannot be resorted to, with any chance of success.") "Professor Hamilton refused to sanction the operation for popliteal aneurism, in a woman seven months gone with child. She died from the bursting of the sac, ten days after delivery."—p. 189.

Respecting the advantages and disadvantages of an early operation, our author says:

> "I believe the majority of surgeons are now agreed as to the advantage of the early application of the ligature; and I am convinced, from the perusal of a great many cases, that the fears entertained by some, respecting the collateral circulation, are groundless. The injury done to the surrounding structures, by the enlargement of the sac, and the possibility of the aneurism becoming diffused, are occurrences much more likely to lead to disastrous results, than the mischief to be apprehended from a deficient supply of blood."—pp. 189–190.

One of the most common accidents after the operation, is secondary hemorrhage. Mr. C. quotes from Lisfranc, to show its alarming frequency. This author states, that, in 180 operations for aneurism, which he had collected, hemorrhage occurred in 32 cases.

Of 600 cases collected by Prof. Porta, secondary hemorrhage took place in 75. Mr. C. accounts for the great difference in the number of cases of this accident collected by these two writers, by the fact that Prof. Porta speaks of the ligature of arteries in general, whilst M. Lisfranc refers to those cases only in which it has been performed for aneurism. Of 256 cases in Mr. Crisp's Table, of ligature of the larger arteries for aneurism, 21 died from hemorrhage. Mr. C. observes, that the rate of mortality would be greatly diminished, by excluding from these, the operations on the aorta, innominata, and those which were performed according to Brasdor's method. The 21 deaths from hemorrhage occurred at the following periods: 6th, 8th, 10th, 11th, 12th, 13th, 15th, 18th, 20th, 21st, 26th, 36th, 38th, and 40th days. Two died two months after the operation. One ten weeks after, and in two cases, the time is not named.

A case has occurred in the practice of the writer, during the last eighteen months, where secondary hemorrhage proved fatal, after ligature of the external carotids, nearly five months after the operation! The case is believed to be unparalleled.

There is one point connected with this subject, which, we regret, has not engaged the attention of Mr. Crisp, viz., the fact that in the majority of cases in which secondary hemorrhage occurs, it takes place from the distal side. We know of no writers, with the exception of Mr. Porter and Mr. Wardrop, who have endeavoured to explain it. It would, we think, have added considerably to the interest of Mr. Crisp's Table, had this matter not been neglected. Perhaps, however, the fault is not so much Mr. Crisp's, as of those who first reported the cases.

Ligature.—After the labours of Jones, Travers, Veitch, Guthrie, Manec, Porta, &c., Mr. C. admits that he has nothing new to offer. He has, however, noted the time of separation of 150 ligatures from arteries, tied for aneurism. We can only state the average:—

Common iliac, 18·35. Internal iliac, 21·42. External iliac. Of 33 cases, the shortest period was 13, the longest 56 days. Average 22 days. Of 54 cases of the femoral, shortest 10, longest 45. Average 18 days. Of 30 cases of subclavian, longest 43, shortest 10. Average 17 days. Of 21 carotid, shortest 8, longest 48. Average 21 days. Average of brachial, 14 days.

Chapter 13.—Aneurism of the Innominata.

Of 20 cases only five were females, and the greater number were between forty and fifty years of age.

In his remarks on the signs attending this disease, our author is very brief, having discussed, as we have already seen in a previous chapter, the symptoms of aneurism in general. There is one symptom which he has not noticed, which occasionally is present in this variety of aneurism, viz., an intense agony produced by the pressure of the sac on the cervical plexus. We recollect some very interesting remarks made on this subject, Nov. 26th, 1846, by Dr. Budd, of King's College Hospital, London. In his lecture on Neuralgia, to show some of its causes, he exhibited a cast of an aneurism of the innominata taken from a patient, on whom, for the reason above mentioned, it produced the most exquisite agony.

Treatment.—Mr. Crisp observes that he knows of only two instances in which this affection has been cured, viz., the patients of Mr. Porter, and Mr. Luke. That of the latter was treated by small bleedings, frequently repeated, and digitalis. Speaking of Brasdor's method, he thinks that by combining with this, gentle pressure on the sac, when circumstances admit of it, a more favourable result than has hitherto occurred, may be anticipated. With regard to the propriety of placing a ligature on the innominata, he merely observes, that *this operation has in all cases been unsuccessful.*

Aneurism of the subclavian. Of 26 cases, only one was a female. Fifteen occurred in the right, eight in the left, and in three it is not stated. The greater number were between thirty and forty years of age.

Operation.—"Of the 26 cases, 10 were ligatured successfully, one was cured by pressure, one refused operation, and one burst externally. The deaths after ligature were 5 of them occasioned by hemorrhage, 2 by suppuration of sac, and the others as follow:—inflammation of right pleura, irritation, apoplexy, exhaustion, 'chest disease,' and pleuritis."

Some remarks are next made respecting the mistakes which have been made in the diagnosis of this variety of aneurism, and the accidents which have happened during the operation, even in the hands of eminent surgeons. No mention is made of that difficult feat achieved by Dr. J. Kearny Rodgers, of New York, in placing a ligature on the left subclavian, *within the scaleni,* being the first instance of the kind on record, which with that of Dr. Warren *between* the scaleni on the left side, seems to have escaped his observation. Indeed, we think, there is just ground for complaint, that in his accounts of the operations, both upon the innominata and subclavian, Mr. C. has been too meagre in his details. We certainly had a right to expect at least the *names* of those mentioned who have undertaken these formidable proceedings.

Aneurism of the Axillary and Brachial Arteries.—Of 18 cases, only one was a female. Eight were on the right, seven on the left, and in three, the side is not stated.

> "The success attending the ligature of the subclavian for spontaneous aneurism of this vessel, forms an interesting contrast with the preceding. Thus, of the 18 examples of this disease, the ligature was applied in 14, to the subclavian, and in one to the axillary. Eleven were successful; three deaths arose from hemorrhage, and one from gangrene. One was supposed to have been cured spontaneously, another refused to be operated upon, and in a third, the result is not known."—p. 212.

Reference is made to the "excellent" paper by Dr. Norris, in this Journal, for Jan., 1845.

Brachial Artery.—The following is all that Mr. C. has to say upon this subject.

> "Spontaneous aneurism of this artery and its branches is very rare; a single case only is mentioned in the Table. Mr. Liston met with one example. In the fourth volume of the '*Journal de Chirurgie,*' another is related. Scarpa mentions two instances. Sir A. Cooper speaks of aneurism of the ulnar artery; and in the College Museum, there is one of the inferior portion of the radial artery, from Mr. Langstaff's collection."—p. 213.

Aneurism of the Carotid.—Of 25 cases, 13 were males, and 25 females. Ten were on the right, and eight on the left. In two, both arteries were affected, and in five, the situation is not named. Mr. C. observes, that he is the first who has noticed the fact, that aneurism of the carotid is nearly as frequent in women as in men—a *fact* which, as we have seen, Dr. Norris's Table disproves.

He dwells at some length upon the diagnosis, and the operation. Speaking of the effects produced by placing a ligature upon the carotid, he says,

> "It cannot be denied (although the cases adduced are, many of them, of a very doubtful character), that the ligature of the carotid has sometimes been followed by cerebral mischief, but I think that the evidence we at present possess, is not sufficient in any case to prevent the performance of the operation. The knowledge, however, of the possibility of the occurrence of cerebral symptoms after the operation, as well as others of a dangerous nature, should not be lost sight of."—p. 222.

Mr. Crisp quotes from Sir Astley Cooper, Dr. Mussey, and Mr. Grouse, the medical attendant of a patient operated upon by Mr. Key, to show that the occlusion of the carotids does not appear materially to affect either the bodily or mental powers of the individual. Whilst reviewing this chapter, a patient has called, whom some two months before the writer had successfully ligatured both primitive carotids. This patient informed me, that his memory has been, until within a few days, materially impaired, but that he believes it is now nearly as strong as ever. To test the strength of his intellectual faculties, several problems in arithmetic were given him to solve, and the facility with which his task was accomplished, showed that his mind was but little if at all enfeebled. For several weeks after the operation, he was unable to read, but his vision is now good. Mr. C.'s chapter on Aneurism of the Carotid is to us one of the most interesting in the whole work, but as the different points connected with the subject, have been so ably handled in the July number of this Journal, 1847, we deem it unnecessary to make any further extracts.

There is one point, however, to which we must refer, viz., the propriety of securing the carotid previously to removing tumours of the head and neck. Mr. Crisp dissents entirely from the conclusions of Dr. Cheevers, who considers that it is far better that the surgeon should make up his mind to contend with an active hemorrhage, than to subject his patient to the chance of fatal hemiplegia, a risk which Mr. C. thinks has been overrated, and that the operation might be more frequently practised with advantage for tumours of the head and face than most surgeons are inclined to suppose. Even if a cure is not effected, by reducing the supply of blood to the tumour, excision and other means may be employed with a better chance of success. In support of this opinion, he refers to the table of circoid aneurisms which he has collected, which shows that of sixteen operations, three fatal cases only occurred, and these did not appear to die from the immediate effects of this proceeding.

Common iliac, external iliac, and gluteal.—Only two cases of aneurism of the common iliac are mentioned in the table, whilst of the external iliac there are nine, all of which were males.

> "In two cases, the common iliac was tied; in the first, death took place on the eighth day from hemorrhage, and in the last the operation was successful. In four cases, the external iliac was tied successfully; one was cured by pressure: another is reported as a spontaneous cure: and in one case in which both the femoral artery and abdominal aorta were tied, death took place a few hours after the last operation."—p. 223-4.

Of the gluteal, two cases only are related: one (Stevens), recovered after tying the internal iliac; the second was cured by pressure in fourteen days.

Femoral artery.—"Of 66 cases of aneurism of this artery, (61 males and 5 females,) 27 were in the right, 17 in the left; 21 are marked femoral or femoro-popliteal, and in one case both femorals were affected; 22 are noticed as being in the groin, 4 as near the groin, and 19 as in the upper third."

> "In these 66 cases, the external iliac alone was ligatured 43 times; and in two other instances. the femoral was tied also; 36 of these terminated favourably; and of the 10 unsuccessful, 3 died from hemorrhage, 2 from sloughing of the sac, 2 from gangrene, 1 from exhaustion, 1 from tetanus, and 1 without any apparent cause. The femoral artery alone was tied in 12 cases, and these, with three exceptions, terminated favourably, 2 dying from hemorrhage, and no cause is assigned for the other death. Amputation was resorted to in 5 instances with complete success. Two cures were effected by pressure, and one spontaneously."—p. 225.

Popliteal aneurism.—The frequency of the disease in this situation may be shown by the fact that of 551 cases of aneurism contained in Mr. Crisp's table, 137 were of the popliteal artery, and of this number only 4 were females. The majority occurred in persons between 30 and 40 years of age. In 110 the Hunterian operation was performed; of these, 2 died; 4 from hemorrhage, 3 gangrene, the rest from fever, chest disease, shock of operation, tetanus, and phlebitis. Of the six remaining cases, 3 died after amputation (alone), 2 without operation, and 1 affected with aortic as well as popliteal aneurism, died from the bursting of the former as soon as the tegumentary incision was made. The 11 patients affected with aneurism in both hands were all cured. In 10 the ligature was used, and 1 was cured by pressure.

Notwithstanding the great mortality which the statistics, furnished by Mr. Crisp, show has followed the Hunterian operation for the cure of popliteal aneurism, nearly 1 in 9, there are some who, with Mr. Syme, contend it is after all the preferable method of treatment, although in upwards of 30 cases treated by pressure, no fatal consequences have ensued, unless we include Mr. Cusack's patient, who died from disease of the heart. Still they contend for the superiority of the Hunterian operation. Could every surgeon boast of Mott's success, (only two fatal cases in fifty: Velpeau says Mott told him one in fifty,) there would be some consistency in their course, but *statistics* show that the above success is absolutely astonishing, and as a general rule, cannot be expected. For further proof on this point, let the reader consult *Mott's Velpeau*, vol. ii. p. 144.

Having noticed the different symptoms which may be present in this form of aneurism, he relates three very interesting and instructive cases, to show how difficult the diagnosis may be, when it is diffused, and of large size. These cases, which proved to be of this character, were supposed by surgeons of eminence to be of a fungoid character, or chronic abscesses, &c. &c. In one, although the exploring needle was used, and a small quantity of dark-coloured blood discharged, it was erroneously supposed to be a case of fungus hematodes, showing, in addition to the case we have already mentioned, that this method is by no means an infallible test, and that mistakes of this kind are not confined altogether to the older surgeons.

As a further illustration of the almost impossibility of diagnosing certain cases of this kind, we may mention one which we heard related by Mr. Fergusson, last winter at King's College Hospital, London. A man one night found, after getting into bed, that he suffered the most intense pain in his limbs. After a while mortification took place in the foot and leg. Sir Charles Bell and others who saw him, had no suspicion of aneurism. Mr. F. was requested to see him, and if he thought best, to amputate. This was done, and dissection of the limb showed an aneurism in the ham nearly as large as an egg.

Chapter 21st is devoted to the consideration of the arterio-venous aneurism. Only a page and a half, however, is given to it, and the greater part of his remarks are copied from the obervations of Mr. Thurnam, in the 23d volume of the *Medico-Chirurgical Transactions.*

Dilatations of arteries form the subject of the next chapter.

He divides these into two classes:—first, "those in which the coats retain their natural thickness; and, secondly, the dilatations accompanied with considerable tortuosity and thinning of the coats, and which have been described as aneurisms by anastomosis."

Mr. Crisp believes that the affections known as nævus, morbid erectile tissue, branching and circoid aneurism, aneurismal varix, and aneurism of bone, are only modifications of the same disease. Nævus, or capillary aneurism, is formed by dilatations of the smaller vessels, is generally of a dark red colour, seldom if ever attended with pulsation, and but rarely attains a large size; besides it is mostly congenital. Circoid aneurism is a more serious disease, and like capillary aneurism is generally seated in the upper part of the body. It is often rapid in its growth, and sometimes attains a large size, and has in most instances a pulsatory movement. Sometimes the main arteries are not dilated, and the tumour is made up of a congeries of small vessels; in other examples, it has a cellular sponge-like appearance. Mr. C. has collected some forty-five cases of this kind, in a table which comprises, in his opinion, the greater number on record. Five of these cases occurred in the practice of our own countrymen, (if we include Dr. Pattison.) Two are recorded by Dr. Gibson, one by Dr. Mussey, one by Dr. J. Mason Warren, and one by Dr. Pattison. • The cases related and delineated by Breschet, in the 3d volume of the *Mém. de l'Acad. Roy. de Médecine*, seem to have escaped Mr. Crisp's observation altogether. Indeed, throughout Mr. C.'s work, we believe not the slightest reference is made to the labours of this distinguished anatomist and surgeon. We have been informed that a case of this kind has recently been under the care of Dr. J. Kearny Rodgers, of New York, and that the carotid of one side has been tied with the effect of producing a considerable diminution in the size of the dilatations. To the proposal of Dr. R. of tying the carotid of the opposite side, we believe the patient has not yet consented.

"The ligature of the carotid appears to have been attended with greater success in this class of cases, than when the vessel has been tied for hemorrhage, or circumscribed aneurism. Thus the artery was ligatured sixteen times; and in three patients both carotids were tied. The ligature alone was successful in five cases, in seven operations benefit was derived from the tying of this vessel, and the disease was afterwards removed by pressure, caustic or excision."—pp. 277–8. If this operation does not of itself effect a cure, the caliber of the artery is so much diminished, that excision and other means may be employed with a better chance of success. In the less severe form of this disease, Mr. C. recommends, as in cases of nævus, Mr. Liston's method of strangulation by the double ligature, or excision, and as four instances of death are recorded in his table as following this method, the advice of John Bell "not to cut into the tumour, but to cut it out," cannot be too strongly impressed upon the operator.

Aneurism of bones.—"Of 25 cases of this disease which I find on record, 19 occurred in males, and 6 in females. The pelvis was the seat of the affection in one patient; the femur in 5; the tibia in 13; the metatarsal bone of the second toe in 1; and the humerus in 5. Five were cured by operation, one was benefited; 5 died after amputation; 5 after the ligature of the main artery; 4 after ligature and amputation; 4 died without operation, and in 2, whose limbs were removed, the result is not known."—pp. 278–9.

The rest of this chapter is devoted to the consideration of the resemblance between these tumours and fungus hæmatodes. Although he can discover no striking analogy between the diseases, Mr. Crisp thinks that fungus hæmatodes must be classed among the vascular growths. The distinctions are thus stated.

"The greatest resemblance (of fungus hæmatodes to cricoid aneurism) consists in its rapid growth; its prevalence in young subjects; its frequent occurrence after an injury; its tendency to hemorrhage, and the dilatation and transparency of the smaller arteries. On the other hand, cricoid aneurism seldom, if ever, affects the abdominal and thoracic viscera, and is rarely met with in the lower half of the body; secondly, it is not, like fungus hæmatodes, liable to return after operation, or to affect other parts; thirdly, the soft cerebriform matter, so frequently present in fungus hæmatodes, is not usual in cricoid aneurism, and pulsation is of unfrequent occurrence in the former disease."—p. 280.

Some interesting information is contained in the 23d and 24th Chapters, on ulceration and rupture of arteries, but we must pass on to a subject of more practical importance, viz., wounds of arteries, which completes Mr. Crisp's remarks *upon the diseases of the arteries.* After stating that his own experience in the treatment of wounded arteries has been limited, he dismisses, in a very summary manner, the consideration of the process by which nature arrests the bleeding from a wounded artery, and refers the reader who would wish a more minute account to the works of Petit, Morand, Sharp, Gooch, Kirkland, Pouteau, Bell, Jones, Béclard, Manec, Guthrie, Porta, &c. &c.

In the treatment of wounds of the smaller arteries, after alluding to the use of Ruspini's styptic, and *other* astringent washes, he refers to the value of the application of cold and pressure, the latter when applied over the brachial, radial or ulnar, and when well adjusted, being often sufficient to stop the bleeding, and do away with the necessity for the ligature. In troublesome bleeding from leech-bites, if the nitrate of silver, sponge, matico, glazed card, pinching the integument, the actual cautery, &c., do not arrest it, Mr. Crisp advises the introduction of a very fine needle through the lips of the wound, and the use of the twisted suture, the ends of the needle being excised. In dental hemorrhage, plug the cavity with lint, then insert a piece of cork which fits firmly between the two teeth, and which projects a little beyond their crowns. A bandage is then to be tightly applied under the jaw, so that firm pressure is kept up (by means of the opposite tooth upon the cork) for several hours. In epistaxis, when obstinate, plug the posterior nares with sponge, or a piece of sheep intestine filled with water. In bleeding from the temporal artery, divide completely. In wounds of the epigastric, pudic, lingual, and other arteries of this size, if the ends can be seen, torsion may be tried. In dangerous hemorrhage from the internal pudic, or the artery of the bulb, after lithotomy, long continued pressure with the finger has succeeded. In wounds of the lingual in infants, from division of the frenum linguæ, the actual cautery will be found effectual.

In the treatment of wounds of the large arteries, Mr. C. observes, that he believes nearly all modern surgeons are now agreed as to the propriety (when practicable) of enlarging the wound and passing a ligature round both ends of the artery, or above and below the bleeding aperture. In traumatic aneurism at the bend of the elbow, however, he quotes the observations of Dr. Colles of Dublin, to show that it is unnecessary to apply more than one ligature, and that that should always be tied as near as possible to the seat of the disease. Mr. C. thinks it is questionable whether the ligature should be resorted to until pressure has had a fair trial, believing, as he does, that many which are now thought to require the operation, will hereafter be treated successfully by this method.

Mr. Crisp comments somewhat at length upon some of the opinions advanced by Mr. Guthrie in his recent work on "*Wounds and Injuries of Arteries*," particularly the impropriety of tying the subclavian above the clavicle in wounds of the axillary artery, so strongly urged by Mr. Guthrie. To show that this operation is not "three times more deadly in its average result, than tying the axillary artery at, under, or above the pectoralis minor muscle," Mr. C. makes use of the evidence furnished by the cases selected by Dr. Guthrie himself from the records of European and American surgeons.

> "According to Dr. Norris, (quoted by Mr. Guthrie,) 'of 69 cases of ligature of the subclavian, 36 recovered and 33 died; 17 of these were for wounds of the axillary artery; 9 of the operations were successful, and 7 terminated fatally.'
>
> "Mr. Guthrie quotes 23 cases of wounds of the axillary artery and its branches: (55, 56, 59, 61, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 79, 80, 81, 84, 85, and 86.) In 11 of these the subclavian was tied above the clavicle, in 11 the artery was ligatured below; and in one case only (59) was the operation recommended by Mr. Guthrie, performed; the patient died of disease of the chest. Of the 11 cases of ligature of the artery above the clavicle, only two patients died: One from hospital gangrene, after amputation at the shoulder joint, and one from bursting of an internal aneurism. Of the 11 patients, in whom the ligature was applied below the clavicle, six recovered, three died from mortification of the extremity, one from exhaustion, and one from hemorrhage.
>
> "Notwithstanding the extraordinary success which appears to have resulted from the above-mentioned treatment, Mr. Guthrie considers it in every instance, (to say the least,) to have been injudicious."—p. 303.

Again, in hemorrhage from the throat, requiring the ligature of the carotid, Mr. Crisp would differ from Mr. Guthrie, who states that in such cases it is the external carotid which ought to be tied. The cases of wounds of the neck, which required a ligature to be placed upon the carotid, are thus noticed by our author.

> "The common carotid has been tied for wounds of the neck, by Abernethy, Carpue, Guthrie, Larrey, Bidor, Giroux, Dacrux, Boileau, Sisco, Roux, Michon, Tyerman, Marjolin, Dupuytren, Hebeinstreit, Sedillot, Ellis, Brown, Horner, Hemming, Collier, Travers, Vincent, Twitchell, Maling, Ellis, and Clarke. Of these 27 operations, 19 were successful, and 8 terminated fatally: Abernethy's, Guthrie's, Giroux's, Marjolin's, Travers', Maling's, Sedillot's, and Vincent's."—p. 304.

This result differs materially, from that contained in the Table of Dr. Norris, in this Journal, for July last. Of 30 cases collected by Dr. Norris, in which the carotid was tied for wounds of the neck, only 15 were cured!

Mr. Crisp makes the following comparison between the results of the operation for spontaneous aneurism, for wounds and ulcerations, and for erectile tumours:

	Cases.	Deaths.
For spontaneous aneurism, . . .	21	11
For erectile tumours, ...	16	3
For wounds and ulcerations, . .	33	9
Total	70	23

Let us contrast the above with the conclusion to which Dr. Norris arrived from the cases comprised in his Table:

	Cases.	Deaths.
For aneurisms, ...	38	16
For wounds, ...	30	15
For extirpation of tumours, . . .	18	6
For epilepsy, ...	6	
For erectile tumours, ...	42	12
Brasdor's operation, ...	15	4
Total	149	52

The following are Mr. Crisp's conclusions, with respect to the treatment of wounded arteries.

1st. Well adjusted pressure upon the artery above the wound, will, in many instances, arrest the bleeding, and lead to a permanent cure without the use of the ligature.

2dly. Pressure should, in all cases of traumatic aneurism at the bend of the arm, be tried before the ligature is resorted to.

3dly. In cases where the hemorrhage is likely to endanger life, (pressure being inapplicable,) it is desirable to tie *both ends of the artery*, where they can be readily secured.

4thly. Although it is advisable to pursue the last-mentioned plan of treatment when practicable, the successful cases of ligature of the main artery on the proximal side of the wound, are sufficiently numerous to warrant the belief that this operation will, in the majority of cases, arrest the hemorrhage and lead to a favourable result.

5thly. In many instances, it is difficult, if not impossible, to find the bleeding artery, especially when the surrounding parts are inflamed and infiltrated with blood.

6thly. Many operators have failed in securing both ends of the artery, or even one of them; and in some instances where the mouth of the bleeding vessel could not be seen, the hemorrhage was arrested by passing a curved needle round the artery, and including some of the neighbouring parts in the ligature.

7thly. A more careful and extensive record of facts, must be obtained before anything like positive conclusions can be arrived at, respecting the treatment of some cases of wounded arteries; no general rule can be applicable to all; and the surgeon must be guided principally by the circumstances of the case.

The remaining *portion* of Mr. Crisp's volume is devoted to the consideration of the diseases of the veins, the whole of which is dispatched in some 26 pages. There is, however, an appendix of five pages, upon the structure and diseases of the blood-vessels of the lower animals; but we have dwelt at such length upon the affections of the arterial system, the examination of which constitutes by far the most valuable part of the work, that we shall be under the necessity of bringing our remarks to a close. We must remark, however, that if any one takes up Mr. Crisp's Essay, with the expectation of finding a complete and thorough discussion of the several topics embraced under the head of the diseases of the veins, he will be disappointed. Even at the time Mr. Hodgson wrote, *he* deemed it necessary to devote more than twice the space which Mr. Crisp has allotted to this very interesting and important subject, and from all the light that has since been shed upon many points which were then not clearly established, we had a right to expect more than has been accomplished by Mr. Crisp. Indeed, valuable as is, in many respects, the essay which this gentleman has produced, it cannot take the same high rank which, by the unanimous consent of the profession, has been given to Mr. Hodgson's most excellent treatise.

G. C. B.

Art. XV.—*Elements of General Pathology.* By A. F. Chomel, Prof. of Clinical Medicine, &c. &c. &c. Third edition, considerably enlarged. Translated from the French, by F. E. Oliver, M. D., and W. W. Morland, M. D., Members of the Massachusetts Medical Society. Boston: 1848: pp. 458, 8vo.

This translation of the work of M. Chomel, will, we doubt not, be very acceptable to the profession. It is, indeed, a matter of surprise that a treatise which has deservedly obtained so high a reputation, should not have been earlier made known through the medium of a translation. The reason for this may perhaps be found in that vague impression which so generally prevails, that works on General Pathology are not immediately practical, and therefore of secondary importance; an impression which, certainly, is in a measure justified by the character of nearly all the works upon this subject. Yet, it must be evident, upon reflection, that General Pathology is so intimately connected with practical medicine, that it is very difficult to distinguish their point of union, and still more so, to disjoin them and consider them separately. Indeed, without this co-ordinating element, Medicine is but a confused mass of details, with no mutual dependence, experience resolves itself into experiment, and a rational art is degraded to the level of a barren empiricism. It enters into all medical reasoning, and is the ground-work of all medical treatment, for every practitioner acts either upon his own experience, or upon that of others, refers to the laws which influence the production, the course and termination of diseases, and claims to understand the language of symptoms, and their common therapeutical indications. In other words, he appeals unconsciously to General Pathology, to enlighten and direct him. It is plain, therefore, that if works under this title have not been heretofore received with much favour, it has been because they have imperfectly fulfilled their legitimate object. Instead of containing an exposition of what is known, they abound in confident speculations upon matters beyond our cognizance; the unprofitable ground from which the labour of successive generations has been unable to extract the slightest addition to the stores of science, is cultivated with persevering zeal, while those ample and fertile fields lie waste and abandoned, which would substantially reward their culture.

We welcome, therefore, with sincere pleasure, the appearance of this work, constructed as it is from materials furnished by the experience of one whose high qualifications as an observer, teacher and physician, are so widely known. Moreover, the general tone of the work is such as to fascinate the attention, and it is pervaded with an air of candor, a reliance upon the teachings of Nature, a firm confidence in the progressive improvement of medicine, which impart to it additional attraction, and very much enhance its usefulness. It were, perhaps, desirable that some subjects had been considered at greater length, particularly the causes of disease, and pathological anatomy. It may be remarked, also, that since the publication of the last edition in 1840, investigations with the microscope, and with chemical reagents, have acquired so much importance by the additions made therewith to our positive knowledge of molecular morbid changes, as to render imperfect and inappropriate the short and slighting notice which their uncertainty, at that period, might have warranted.

The order in which the several subjects are treated, is that which would naturally present itself to the mind. M. Chomel, in the opening chapter, unfolds his plan, which we cannot do better than give in his own words.

> "We shall first consider the definition of disease in general, and point out the rules which should guide us in the definition of diseases respectively. After some considerations on the nomenclature, etymology and synonymy, we shall speak of the seat of diseases, their causes, precursory phenomena, symptoms, progress, duration, and various terminations. We shall thus be led to the examination of the doctrine of crises and critical days. Convalescence, the consecutive phenomena, relapse, kinds, varieties and complications of diseases, diagnosis and prognosis will be generally considered. We shall also devote a chapter to the examination and appearance of bodies after death, and having touched upon the fundamental rules of treatment, we shall conclude by offering a few remarks on the nature and classification of diseases."

The prescribed limits of this notice, will preclude us from giving anything more than a mere outline of the multitude of interesting details embraced in this plan. We commence with the *Causes* of disease, which are divided by M. Chomel into three classes, viz.—*Determining*, *Predisposing* and *Occasional or Exciting* causes. This division is, of course, imperfect; cold, for instance, may be placed in any one of the three classes according to its severity, and the time during which the body is exposed to it; the same may be said of heat, and indeed it would not be difficult to find other agents which cannot be rigorously included in any one class. Yet, even with these imperfections, this division is better than those usually made, for it has reference to the mode of action of morbific causes, so far only as this is apparent, while the terms intrinsic and extrinsic, remote and proximate, material and immaterial, and the like, which are all in common use, are based upon conjecture, and are vague and uncertain. *Determining* causes are such as give rise constantly to the same affection, as poisons, asphyxiating gases, and wounding instruments; among them are included also the *specific* causes which produce individually, each a peculiar disease, as e. g. syphilis, rabies and variola. The *general predisposing* causes are, for the most part, diffused in the atmosphere, or arise from certain local conditions; the *individual* embrace the various conditions peculiar to each person, and those external circumstances, such as change of climate, food of bad quality, or of insufficient quantity, compression exercised by various articles of dress, &c., which may predispose more or less to the development of disease. To the word "predisposition," M. Chomel attaches a peculiar signification, admitting the existence, in many cases, of proneness to certain diseases, in persons who have not been exposed to any of their developing causes. It includes all the so-called diatheses, and to those which are already admitted, he would add the varicose, melanic, ulcerative and hemorrhagic. He does not allow the purulent diatheses, but we think that it is better entitled to be ranked among them than the gangrenous, ulcerative and aneurismal, for there are not a few cases upon record, of undoubted primitive pyæmia.

The aneurismal would be more appropriately called the *atheromatous* diathesis, for although the causes of aneurism are various, the only form which gives evidence of a prevailing morbid condition, by its simultaneous or successive occurrence in different parts of the body, is that which is due to the atheromatous transformation of thickened patches upon the internal coat of the arteries. Nor do we think that the gangrenous and ulcerative diatheses can be properly admitted, as they are but secondary symptoms usually depending upon some grave existing disease, or the vitiation of the atmosphere. *Exciting* causes of disease are those which develope it in persons already predisposed.

They are very numerous, but may mostly be referred to the neglect of hygienic and dietetic rules. M. Chomel remarks in speaking of the mode of action of these various causes, that with the exception of those which act mechanically, such as wounding instruments, strangulation of the intestines, &c., there are several steps in the process between the application of the cause, and the production of the disease, which are in complete obscurity. Thus, we know nothing of contagion, except by its results; the contagious character has been accorded to such diseases as are capable of transmission from affected to healthy individuals, and the agent itself, which is inappreciable, has been called a contagious principle.

Whether this contagious principle, which we cannot isolate or know, acts upon the system through the medium of the nerves, the blood or the inspired air, as has been variously supposed, is, and will probably remain, matter of conjecture. M. Chomel hazards the opinion, that by "force of habit," insensibility to the impression of certain contagious principles may be acquired.

The illustrations adduced to substantiate this opinion are, that "in places where the yellow fever is endemic, as Havana, and Vera Cruz, the inhabitants are not attacked by it, that the Turks in Constantinople seem to be as much habituated to the principle of the plague, which is in almost continual action in some parts of the city, as they are to opium by daily use, and that if hospital physicians are not more frequently the victims of epidemic typhus," it is because they have become inured to the contagion by an early exposure to it. We cannot concur in this opinion, doubting much whether the "force of habit," of which M. Chomel speaks, can be admitted without much reservation. In the absence of direct proof that early exposure to diseases which are palpably contagious, destroys our susceptibility to their attacks, or rather with so much evidence to the contrary, we must seek, in other causes, an explanation of the immunity which the natives of Vera Cruz and the Havana are said to enjoy.

There is an error of fact as well as of analogy in the statement relating to the Turks of Contantinople. The plague has *ceased* to make its appearance in that city, since the year 1837, in which, for the first time, the quarantine laws were rigorously enforced; before this period, it was an annual visitant, and paid no more respect to the natives than it did to others. We feel convinced, that M. Chomel in speaking of "epidemic typhus," does not allude to the disease which we would recognize under this name, but to the typhoid fever, as it occurs in Paris, for there is no want of evidence, that physicians and others, attending on typhus patients, do not enjoy any exemption from the attacks of this disease. This fact has received a melancholy corroboration in the great mortality in the medical staff of the hospitals of Ireland, during the late epidemic of typhus in that country.

Symptomatology and diagnosis are considered separately, a division which is, however, practically neglected, as in the chapter on symptomatology, the signs of disease as well as symptoms are discussed, while in that on diagnosis, the physical aids in the recognition of disease, and the circumstances which bear upon its proper and methodical execution are more particularly treated of.

The *symptoms* of disease are taken up in the following order, as they are furnished by—1st. The functions of relation. 2d. Those of assimilation. 3d. Those of generation. The first class includes such as are furnished by the exterior of the body, by locomotion, by the voice and speech, by the sensations, the affective or intellectual functions, and by the sleeping or waking state. The symptoms included in this class are such as require great medical skill for their appreciation, and we therefore consider the many practical details which so accurate an observer as M. Chomel has here given us, as particularly valuable. Our limits will, however, allow us here the citation of but one practical remark, which we think well worthy of attention. In enumerating the symptoms furnished by the abdomen, M. Chomel says that cases of obstinate vomiting are sometimes met with, which, being attended with considerable emaciation, may lead to the belief of the existence of stomachal cancer, but that in such cases he has sometimes discovered this symptom to be due to a form of hernia not generally known, viz., the engagement of "a small portion of the epiploon in a narrow opening, not easily distinguished, in the lower half of the linea alba below the umbilicus. It is therefore of the greatest importance, in persons attacked with vomiting, to examine with particular care the whole extent of the linea alba, as well as all other parts of the abdominal surface, where hernia is liable to occur." In the 2d class of symptoms, those derived from the digestive organs are first considered.

The semeiology of the tongue receives particular attention, as to its volume, form, movements, colour, moisture, &c. M. Chomel does not believe that the state of the tongue is a true index of that of the stomach, but that the alterations of the colour and evenness of its surface are due to the greater or less intensity of febrile action. The pointed tongue is not peculiar to inflammation of the stomach, and the transverse and often irregular cicatrices which the surface of the tongue sometimes presents, should lead us to suspect epilepsy.

In the section treating of the symptoms furnished by respiration, a clear and concise view is given of the irregularities in the performance of this function, as well as of the phenomena revealed by the physical exploration of the chest. To this are added a few pages upon the semeiology of coughing, expiration and expectoration, together with that of other phenomena of inferior importance. The *sputa* are considered at some length, and their various diagnostic value estimated. In respect of the possibility of recognizing tubercular matter in the sputa, M. Chomel says "that during thirty years in which he has carefully examined the sputa" of phthisical patients, he has "never been able to distinguish these pretended tubercular and melanotic fragments." He describes the sputa which proceed from tubercular softening as "voluminous and abundant, presenting opaque, parallel, or zigzag striæ, in a mass of varying opacity, and floating in a clear and serous liquid." As the disease advances, the proportion of this clear and serous liquid diminishes, and the expectorated matter assumes the aspect of homogeneous pus, and will not mix with water. In the next section, in which are considered the symptoms furnished by the circulation, the author, while adopting the so-called *valvular* theory of the sounds of the heart, admits that it does not accord with a number of pathological facts. The cardiac impulse, he conceives, is produced at the moment of the ventricular contraction, but does not always correspond in force with the augmentation of the volume and muscularity of the heart, for, in some cases of active hypertrophy of this organ, the impulse is not increased in force, and is sometimes even feebler than in the normal condition. It is doubtful whether such exceptions can be explained and reconciled with other phenomena, by any of the theories which are now generally received. In spite of all the experiments made for their elucidation, the causes of the cardiac sounds and impulse still remain in great obscurity. The signs afforded by the pulse are next described. The results obtained by MM. Leuret and Mitivie show that, instead of diminishing, as was generally supposed, the pulse increases in frequency in the decline of life; a fact, which is fully confirmed by the observations of Dr. Pennock, made at the Philadelphia Hospital, and reported last year in the July No. of this Journal. Many interesting particulars with regard to the symptomatology of the pulse are given, and the employment of the stethoscope for the discovery of the abnormal sounds in the arteries.

The analysis of the blood in disease has, since this work was published, added so much that is interesting to our previous knowledge, and made necessary so many modifications in the opinions which were then held, that we cannot regard the remarks presented under this head as exhibiting the present state of our knowledge of its pathological changes. The natural and morbid exhalations and secretions furnish numerous symptoms which are considered at some length. M. Chomel asserts that "pus is now considered as the result of a morbid exhalation, but that it is remarkable, that it does not present its characteristic appearance, until it has remained a certain length of time upon the organ which furnished it." This statement is, however, somewhat at variance with itself.

According to Rokitansky,* pus is formed out of an albuminous exudation, as may be seen on mucous membranes, open wounds, and abscesses. It is also frequently found in combination with an exudation of fibrin, forming those consistent, obturating plugs which are frequently found in the vessels. Metastatic abscesses are attributed by M. Chomel to the passage of pus into the blood and its deposition in various organs, forming thus an abscess or becoming "the material cause of suppurative inflammation." But, according to Rokitansky, whose observations and judgment are characterized by great minuteness and accuracy, the presence of pus in the vessels, to whatever cause it may be owing, produces in the circulating fibrin a disposition to coagulate. The direct proof of this coagulation cannot be made as regards the capillary system, but it is constantly seen to take place in the large veins, and generally in the vicinity of the suppurating surface. That these abscesses occur chiefly in the capillary system of certain organs, he conceives to be due to the tortuous course which the blood destined for their nutrition, suffers in its passage through them, so that the pus is left longer in contact with the circulating fluid. The metastatic abscess may hence be regarded as one of the changes undergone by the fibrin of the blood in consequence of the presence of pus in the circulating system.

The semeiology of the urine is more concisely treated than its importance at present would justify, but, nevertheless, a very good summary of the changes it undergoes in disease, and of the alteration of the urinary function itself, is given. The symptoms furnished by absorption, nutrition, and the generative functions are then successively considered, and after them, the sympathetic phenomena, the causes modifying the progress and duration of diseases, and their different modes of termination. Under this last head, the doctrine of crisis and critical days is discussed, the antiquity of the belief in their existence alluded to, and a very impartial digest of the arguments both for and against it, given. "The greater number of acute diseases," says Mr. Chomel, "terminate without critical phenomena, and the phenomena which have been dignified with this name are, for the most part, nothing but new diseases which have supervened upon the decline of the first, or the tardily developed symptoms of the original disease, or lastly the simple effect of the re-establishment of previously suspended secretions." He says also, "that the doctrine of critical days, like that of critical phenomena, does not possess the importance attributed to it, that the difficulty of fixing the days of invasion and termination of diseases, renders it inapplicable in many cases, and that it allows both the adherents and antagonists of the theory to interpret the same facts to their advantage."

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* Rokitansky, Path. Anat. I. Bd. s. 210, 242.

In the chapter on diagnosis, M. Chomel considers first the varied importance of the signs upon which this should be founded, the particular value of each being noticed, in the chapter on symptomatology, and also when treating of the different methods of exploration. The conditions necessary for its formation, the proper mode of examination and interrogation of the sick, together with the seat and nature of anatomical lesions, the form and type of sympathetic phenomena, and the circumstances rendering diagnosis difficult or uncertain, occupy the remainder of this division of general pathology. We would call attention in a special manner, to this chapter, for it abounds in hints of great practical value, in the recognition of disease, and reveals the exercise of a sound and discriminating judgment. Very useful precepts are likewise given, for the exploration of diseased organs by means of pressure, palpation, the touch, mensuration, succussion, percussion, auscultation, and the use of the various specula. M. Chomel dismisses with, we think, too imperfect a notice, the employment of the microscope and chemical reagents in pathological investigations. It is, indeed, true that the conducting of experiments under the microscope and the making of elaborate chemical analyses require previous instruction, delicate manipulation only acquired by long practice, and perhaps a natural fondness for such pursuits. Still, the more simple observations and processes can be made after a comparatively short exercise; they require the expenditure of but little time, and by the important results and the great gratification they afford the physician, fully compensate him for his trouble. Indeed, the importance of these results is becoming every day more evident, and without wishing to exaggerate their value above other aids to diagnosis, we would merely remark, that whatever tends to perfect our knowledge of morbid products, promotes in the same degree our acquaintance with disease itself, and furnishes us with new indications for its treatment, which, after all, is the great end of medical study. Among the causes of difficult diagnosis, is the predominance of the general and sympathetic phenomena over those which are local, but still it is to be remembered, that the brain and the heart, which are the organs that most commonly display sympathetic phenomena, are at the same time, far less frequently the seat of actual disease; it is highly important, therefore, that we should be able to discriminate between the one and the other. Cephalalgia and delirium are most frequently sympathetic phenomena, and "have no very precise value in the diagnosis of cerebral affections, except when rigidity and paralysis of one part of the body, debility or loss of general sensibility, or of one or several senses, are added to one or both of these two symptoms." In like manner, syncope, irregularity in the pulsations of the heart, and even the bellows sound in the heart itself may occur quite independently of cardiac disease. The predominance of febrile action and obscurity of local symptoms, are causes of difficult diagnosis, while on the other hand, the absence of fever in old persons may allow the ravages of local and latent disease to pass unsuspected. The rarity of a disease, its complications and deception upon the part of the patient, are all enumerated as giving rise to much embarrassment in the recognition of disease.

The subject of prognosis is considered in a chapter apart. The knowledge of the probable issue of a disease is based upon an acquaintance with its material lesions and sympathetic phenomena, as well as its "natural tendency towards various terminations, the degree of efficacy of remedial measures, age, sex, constitution, causes, antecedent phenomena, mode of attack, course, duration, and in certain cases complications and epidemics."

A summary is given of the more striking morbid phenomena, upon which the prediction of the probable event of diseases may be founded. Most of them are equivocal in their character, their value depending upon the circumstances under which they are produced, and their coincidence with other signs. Thus general insensibility, convulsions, aphonia, meteorism, and involuntary excretions when occurring in an hysterical attack, are of no particular gravity, while if they present themselves in the course of febrile diseases, they are of the most sinister character. The tongue affords valuable aid in prognosis, and its signs are in this view more important than they are in diagnosis. A dry, hard, and trembling tongue, diminution in the size of this organ, and inability to protrude it, are regarded by M. Chomel as of evil significance; the occurrence also of aphthous patches upon the mucous membrane of the mouth in chronic diseases, indicates a fatal termination. Permanent dyspnœa is much more grave than that which occurs in paroxysms, even although in the latter, asphyxia may seem to be imminent, for experience shows that, in emphysema of the lungs, death rarely takes place during the paroxysm. The exfoliation of the epidermis from subjacent parts after the application of leeches, and the insensibility of the skin to the action of sinapsisms and blisters, are almost constantly followed by death. M. Chomel remarks, that it is necessary to guard against misapprehension in the latter case, by assuring ourselves that the inefficiency of these remedies is not due to the inertness of their ingredients.

Our author justly remarks, that to become accomplished in the art of prognosis, something more than a few years of clinical study is required, that a lifetime devoted to close observation, and an impartial appreciation of facts, is scarcely sufficient to enable us to solve the "complex problems which are daily presented to us," and, indeed, that in some cases the most we can do, is to avoid an erroneous opinion, and establish with tolerable precision the various chances appertaining to each particular case. As an introduction to the consideration of morbid anatomy, M. Chomel gives certain directions for the proper performance of *post-mortem* examinations, which will, we think, be found by many of great service. Experience will frequently suggest certain deviations from the rules here laid down, but as a general guide they are certainly correct and useful. The lesions presented by the organs after death, are divided by our author into lesions of the solids, alterations of the fluids, and the presence of foreign bodies living or inanimate. This sketch of a subject which is now deservedly attracting so much attention, and from which such important additions are daily made to medical science, is too superficial, and not at all commensurate with the consideration due to it even in a work of this nature. Indeed, from the interest which, even in the outline here given, M. Chomel contrives to throw around this important branch of general pathology, our regret is increased at his having laid aside his pen before making the picture more perfect. On the other hand, the subject of therapeutics is treated more elaborately, the qualifications necessary to constitute an accurate observer, the difficulties of experiment, the principles upon which it should be conducted, and the limits within which it is allowable, are all exposed in a manner remarkable for its clearness and force. Here we find, too, a most able advocacy and defence of that method of registering and estimating medical experience which has been termed the numerical or statistical. The object of this method is to give a greater precision to our knowledge of the laws and phenomena of disease and of the value of remedies, and M. Chomel shows conclusively, that the objections made to it, are applicable with equal or even greater force to the ordinary method of generalization. It is a common error to imagine that the results obtained by the comparison of numbers, must be received as absolute. Such a claim would be, of course, untenable, for to whatever amount they may be carried, the result must always be approximative, since it will be modified by each subsequent addition. Yet, because it is vain to expect the attainment of perfect exactitude, we are not, therefore, to reject a system which, in view of the variable phenomena of disease, enables us to approach as near as it is possible to a correct appreciation of their import and of the remedial measures necessary in their treatment. Such an objection might be made with equal justice to every branch of human research, and comes with a bad grace from those, who may have established their opinions or practice upon the far more slender foundation of their own loose and limited experience. The value of the numerical method consists principally in its substitution of visible, for invisible quantities, the known for the unknown, and in gradually collecting materials which, when put together, will give precision and consistency to our knowledge of disease. It is no longer contestable, that most of the additions to medical knowledge which have been made within the last few years, and which have a positive value, have been furnished by statistical records. M. Chomel is, as we have said, a disciple of this school of inductive philosophy; nevertheless, he indulges in no unwarranted expectations of the benefits it may be expected to confer upon science, admitting that it is liable to abuse, but justly observes, that this may become the case in any mode of reasoning whatever, and that a method which requires "accuracy and truth as fundamental conditions" is less likely than another to produce deceptive results. Indeed, it offers us the greatest possible security against error, as it exposes distinctly the elements upon which it is founded, and the process by which its results are obtained.

The remainder of the work is occupied with an enumeration of the indications for treatment which are presented by the symptoms of disease, the therapeutical means properly so called, and lastly, a chapter upon the nature of disease, in which our author gives a brief view of the doctrines of the humoralists and the solidists. This chapter, he says, as it but reveals our ignorance of the intimate nature of morbid processes, might have been altogether dispensed with, were it not that "it is no less important in the study of science, to point out the paths which lead to error than those which conduct to a knowledge of truth." It is in the same spirit of true philosophy that the whole work is conceived; nothing is assumed which cannot be readily demonstrated, and we are taught to esteem facts above names and the results of impartial observation above the most captivating theories.

The outline here given will suffice to convey an idea of the contents of the work; we have only to add that the translation is faithfully executed. It adheres as closely to the original as the idiom of our language will allow, and evinces throughout, the bestowal of much care and attention. The notes which have been introduced by the translators, are few in number, but, for the most part, judicious and appropriate, and the mechanical execution of the work bears those marks of neatness and good taste which we are accustomed to look for in the issues of the Boston press.

M. S.

BIBLIOGRAPHICAL NOTICES.

ART. XVI.—*Females and their Diseases; a series of Letters to his Class.* By CHARLES D MEIGS, M. D., Professor of Midwifery, and the Diseases of Women and Children, in the Jefferson Medical College, at Philadelphia, &c. &c. &c. 8vo. pp. 670. Lea and Blanchard, 1848.

THE well known talents, professional skill, and experience of Dr. Meigs induced the belief that we should receive from the perusal of the work before us, much valuable instruction, mingled with not a little pleasure, from the able manner in which the several subjects embraced in it, would be treated. In some degree, we have to confess that we have been disappointed. The work is certainly an original—and, indeed, perfectly unique one. It comprises a considerable amount of valuable matter in reference to the pathology and therapeutics of the leading maladies of the female, but communicated in a style which certainly cannot be considered in any respect, well adapted for a medical treatise. and is interspersed with physiological speculations, many of which demand further and far stronger evidence of their correctness than the author has adduced.

It is to be much regretted that Dr. Meigs, should have been led, in his attempt to avoid the "dullness and jargon which characterize so many medical writings," to the adoption of a style, which, however much it may please a certain class of readers, is certainly not suitable for a didactical treatise—nor to communicate with clearness and precision those sober truths, severe deductions, and plain practical directions which are so essential to the proper instruction of every student in medicine. It is to be feared, that the popularity and acknowledged talents of the author, may induce not a few to follow his example, and to write with "a freedom and abandon," carried even beyond the verge of absurdity.

It has been urged, as an excuse for the mode of conveying medical instruction adopted in the work before us, that it will induce the indolent student, who would throw away in disgust a dry didactic treatise, to read a professional work with interest. and thus to acquire knowledge in despite of his inaptitude to fix his attention. But though the indolent may read a lively written book for amusement, it is doubtful whether they will be a jot more inclined to mark, and inwardly digest the teachings of that book, than of one written with more soberness of manner. Our ideas of the dignity and importance of a subject, are not a little influenced by the style in which it is discussed, and we have no more idea of a man being coaxed into acquiring a knowledge of pathology and therapeutics by a loose, rambling, though familiar and amusing style, than we have of an unbeliever being induced to study the truths of religion by a comic sermon. The dictum of Blair, that "each subject has its own appropriate style," or, as expressed by Horace, "Singula quæque locum teneant sortita decenter," is founded in truth, and cannot with propriety be disregarded.

After presenting a general exposition of his motives for writing the present series of letters, Dr. Meigs indulges in some very judicious remarks on professional conduct, and on the embarrassments of practice. All will agree with the author, that a very effectual death blow to empiricism would be inflicted, *were it possible* to diffuse among the population generally, a correct acquaintance with the vital laws of the human organism in health and disease; but it is much to be feared that the popular ignorance in this respect will not be in any great degree removed, by the physician attempting to explain to his patients, with frankness, the pathology of their diseases, and the grounds upon which he bases his diagnostic, prognostics, and therapeutics, in each case. If he will take the trouble to question a patient, after an elaborate, and what he may have deemed an extremely plain and perspicuous explanation of his case, and of the rationale of the regimen and treatment he proposes to pursue, the physician will find in nearly every instance, that his attempts to indoctrinate the patient into anything approaching a correct medical acquaintance with his ailments, has completely failed. We dislike mystery and concealment of every kind, but at the same time are rather inclined to the belief that it would be far better for both patient and physician, if, as in times gone by, the directions of the latter were received and implicitly obeyed, without question, as the mandates of one recognized to be " with all the knowledge of his profession well imbued."

There is one part of this letter which we confess not clearly to understand; this is the author's indirect denunciation of medical statistics, more especially as we cannot perceive their immediate connection with the subject under consideration. The doctrines of general pathology and therapeutics, a thorough acquaintance with which, is alone the effectual antidote to the methodism complained of by Dr. Meigs, are derived from, and must be perfected by, an extensive series of accurate medical statistics. We beg, therefore, that they to whom this letter is addressed, will not take the advice of the author, and in the classic language of Mr. Dennis Bulgruddery, " pitch statistics to the divil."

Dr. Meigs' remarks on sex, the ovum, vitellus, corpus luteum, &c., we shall pass over without particular notice, as we do not propose to enter, on the present occasion, into an examination of their correctness. In the highly poetical exposition of the sexual peculiarities, which forms the subject of the fourth letter, the author ranges over a wide field, in the selection of his illustrations, and heaps together materials to establish his positions, derived from almost every, and often very dissimilar and unexpected sources, displaying at once the extent and variety of his reading. How far the female sex may relish the low estimate which Dr. Meigs places upon their intellectual nature, it is difficult to say; though they may be willing, in view of the very pretty and very just eulogium he has passed upon woman's gentle and winning graces, the purity of her taste, the beauty of her moral attributes and propensities, her religious truth, and her powerful influence for good upon the morals of society, to be ranked in intellectual power beneath "her lord and master," man, and to have the hearth-stone assigned as her seat and throne, and the household altar, as her sole place of worship and services.

Dr. Meigs' doctrine of the stroma as the source of the "generic as well as the genetic force," is set forth in the letter before us. The existence of the germ elaborating stroma can be admitted as the constituent of sex in the female, only in a poetic sense. There must be some organ to produce the stroma, which organ is the ovarium, hence it is the possession of this latter, in a condition capable of performing its appropriate functions, and not the product of those functions, that constitutes, physiologically, sex in the female, as the testicles do in the male.

The fifth to the eleventh letters, inclusive, are devoted to a consideration of various affections of the external organs of generation and of the vagina. The remarks of the author in relation to these in general, accord with the experience of the most authoritative of those who have treated on the affections alluded to. They are delivered, however, in a somewhat too diffuse style, and the occasional digressions, though to subjects not certainly altogether foreign from the leading subjects under consideration, rather tend to confuse than to elucidate.

The diseases of the womb are taken up in letter twelve, commencing with prolapsus. Although disproving, as all must do, the *mode* in which Dr. Meigs has seen fit to communicate his views in relation to the causes and management of this very frequent displacement, we most certainly agree as to their general correctness, and are convinced, that if generally adopted and followed out in practice, a much greater number of cures would be the result than is now the case; and neither the constant use of abdominal or perineal supporters, or of " the detestable pessary," would be so frequently demanded.

While much that Dr. Meigs has said on the pathology and management of prolapsus must be commended as just,.yet the *manner* in which his views are communicated is exceedingly objectionable. It is true that the style of the four letters which treat on this subject, is less exceptionable than of some other portions of the volume, still the admission into any professional book, of such a dialogue as the one supposed to be held between the doctor and his patient, contained in the twelfth letter, is particularly obnoxious to criticism, as furnishing a very bad model for the imitation of the young practitioner in his professional intercourse with his female patients, while it conveys no knowledge to the student which could not be communicated in a much less space, and in a much more definite manner. The author is evidently fond of these dialogues; he has introduced them in letters fourteen, sixteen, eighteen, nineteen, twenty, twenty-seven, and forty-five. The dialogues, are, we confess, very readable and amusing; but they are certainly not in good taste, nor a very appropriate mode of conveying medical instruction. In manner, they put us in mind of some of the piquant scenes to be found in the best of the old English comedies, but we cannot find their parallel in any sober work intended to teach "the principles and practice" of either department of the healing art.

The remaining affections of the womb, included in the volume before us, are treated of very learnedly, and much valuable instruction is communicated in regard to them. The correctness of Dr. Meigs' views as to the nature and causes of these affections are generally correct, while his long and extensive experience, gives to his practical directions no trifling weight.

In speaking of physometra or the supposed distension of the womb with air or gas, the author denies the possibility of its occurrence, excepting from putrefaction, in cases where the orifice of the womb has become accidentally closed by a very firm clot or a quantity of chorion and amnion left in the womb after labour. That in cases of inflammation of the lining membrane of the uterus, an accumulation of air within the cavity of the latter does frequently take place, we have the positive assertion of Mr. Whitehead, in his late book on abortion and sterility, and his opportunities for satisfying himself on this point, and his habits of close observation, render it scarcely probable that he has been deceived. It is, he remarks, commonly discharged in the form of bubbles, which may often be seen to burst in rapid succession during specular inquiry. Generally speaking, the gas emits an offensive odour, owing, in most instances, probably to decomposition of the small coagula liable to be retained after menstruation, or which may also form at other times. It may probably be, on some occasions, the product of secretion. Of the occasional formation and accumulation, to a certain extent, of air within the cavity of the womb, there can be little doubt. In regard to the mode of its formation we feel no inclination to enter here into a discussion; that it may be secreted in some instances is not improbable, for although Dr. Meigs denies that air or gas is ever secreted, yet the fact, very generally admitted by physiologists, has, we conceive, been proved by more than one conclusive experiment. "A fish, even, says Dr. M., does not secrete the air of his swimming bladder. He comes to the surface for it." In making this statement, the author was certainly not aware that he places himself in opposition with the highest authorities in natural history, and comparative physiology. In by far the larger number of fishes, the swimming bladder has no opening for the entrance or escape of the air, whilst in others, in which the bladder communicates with the œsophagus or stomach by a duct, there are valves in the latter which only allow the air to pass out. Again the air contained in the swimming bladder has not the same composition as that of the atmosphere; this is proved by the accurate experiments of Dr. Edwards. There are good reasons, therefore, for believing it to be the product of secretion.

The subject of the twenty-sixth letter is puberty—or that period during which the preparation for and the full establishment of the menstrual office is accomplished. This is a good letter—with the exception of the author's peculiar views of the physiology of the endangium—and of the pathology of emansio-mensium, its dependence, namely, upon disease of the endangium. To this latter, the author refers the disturbance of the due relations in the activity of the female organs, that prevents the occurrence of the catamenial act. Now the endangium is the common lining membrane of the whole blood-vessel apparatus; and it is by contact with this membrane that Dr. Meigs believes the blood to be formed.—When, he tells us, this "blood making surface" is in perfect health, and when a sufficient supply of perfect chyle is applied to it, we have perfect blood, but when the tissue becomes diseased, we have diseased blood,—"or at least, the blood acquires a dyscrasy that prevents it from exercising its due influence on the organs and tissues." To cure the impaired condition of health, the indigestion, the anemia, the disturbed and irregular innervation, the muscular debility, &c., attendant upon certain cases of emansio-mensium, and to establish the full menstrual function, the "prime indication, according to Dr. Meigs, is to cure the membrana-vasorum interna, the endangium, the lining membrane of the blood-vessel—the blood membrane."

Now the therapeutical directions laid down by the author for the cure of chlorosis are admirable, and the hygienic precepts he has given for the management of puberty are also in their general outlines perfectly sound—but we can discover no possible connection between his pathology and his treatment, whether remedial or preventive.

With Burdach, we believe, that the endangium is merely the lining tissue of the blood-vessels, and that it does not possess a very high grade of organic life. It is unnecessary for us to enter into a refutation of the doctrine which ascribes to it the elaboration of the blood, and an agency in the production of all blood diseases as assumed by Dr. Meigs. He has presented it as a simple hypothesis—and until the arguments upon which the doctrine is based and supported are adduced, we have nothing to oppose; we cannot admit the doctrine to be true—but still it would be illogical to decide absolutely that it is incorrect, until Dr. M. furnishes the evidence by which he supposes it to be established.

The twenty-eighth and three succeeding letters are on the subject of the menstrua. The view of Dr. Meigs in considering the menstrual discharge as a true "mensual hemorrhage" is no doubt correct. The examinations of M. Donné have very conclusively shown that the menstrual blood does not differ under the microscope, from ordinary blood either in its quantity of red corpuscules or of its fibrin. Some very interesting observations in relation to the characters of the menstrual blood, proving the same fact, will be found also in the first chapter of Whitehead's treatise on abortion and sterility.

The remarks on emmenagogues—and on the management of difficult and suspended menstruation are particularly sound and interesting, and delivered in quite a sober perspicuous style.

There is a case related in the letter on menorrhagia, which is, as the author remarks, "a very extraordinary" one,—it is especially so in reference to the management of it. The propriety of allowing a profuse uterine hemorrhage, occurring in "a very delicate young lady," to go on for many hours without any attempt to restrain it, notwithstanding fainting repeatedly occurred, and the profuse discharge could only finally be arrested by the use of the tampon, may, we conceive, be justly questioned. The author presents this case as "the unexaggerated history of the conduct of a case of menorrhagia in a virgin." Either the generally received views of the effects of excessive and frequently repeated discharges of blood are altogether erroneous, or the practice referred to is very far from being the most proper. It is a false delicacy—apt we fear, if it were followed out in practice, to produce very baneful results,—that would allow a case of flooding in a young delicate female to go on "very far towards a dangerous state, rather than subject the patient to the mortification of the surgical intervention."

In letter thirty-seven, Dr. Meigs advises "in all cases of obstinate vomiting, connected with pregnancy, to allow the patients to drink champagne *ad libitum.*" In a case related, Dr. Meigs remarks, that "the irritation of the stomach had passed evidently into inflammation," and "notwithstanding he succeeded, by means of champagne, in apparently curing the malady of the stomach—the provocative cause being still in operation, the disorder returned, and would not yield to the remedy—nor would it yield to any other remedy which he could employ." But, "the pregnancy was *no sooner* brought to its conclusion by the birth of the child, *than all the phenomena disappeared,*" and the patient recovered her health.

The cure of a gastritis by the *ad libitum* use of champagne, is a somewhat novel proposition in therapeutics.—It is doubtful, however, whether these cases of obstinate and excessive vomiting during pregnancy, are dependent upon inflammation—the very fact that the vomiting, in general, disappears immediately upon delivery is a strong presumptive evidence that the mucous coat of the stomach was not for many months in a state of phlogosis.

The forty-first letter is devoted to a consideration of the pathology and treatment of puerperal fever. On these subjects the views of Dr. Meigs are well known from the essay published by him some years since in one of the volumes of the, *Select Medical Library*, and reviewed in the Number of this Journal for Oct. 1842. As there stated, a class of cases do certainly occur, and there are no doubt many epidemics of puerperal fever, to which these views will apply, and in which copious bleeding at the very onset of the disease will very often cut it short, or, at least, arrest its fatal tendency; there are, however, another class of cases and other epidemics of child-bed fever, to which the pathology of Dr. Meigs will not apply and in which bleeding or active depletion of any kind is not tolerated. We have seen and attentively studied this latter form of the disease, and whether the result of a poison introduced into the system, or of a morbid change in the condition of the blood, we pretend not positively to determine—but the tendency to sinking sets in very early and can, but in a very few instances, be arrested by any course of medication, certainly not by the lancet.

As to the contagiousness of puerperal fever, which is denied by the author,—the series of clearly ascertained facts bearing upon the question is too imperfect to enable us to form a very decisive opinion—but in regard to the connection between erysipelas, and some, at least, of the forms of puerperal fever, the evidence that has been adduced, is apparently conclusive. Dr Meigs denies that erysipelas, which is, he remarks, "essentially a dermal disease," can affect any other than the dermal structure, or what may be considered as the same thing, the mucous membrane of the vagina or the womb; there "cannot," he maintains, "be any identity between erysipelas, a dermal disease, and the deadly inflammation of the peritoneum observed in lying-in women." But, may not the same *morbid action*, which produces erysipelas of the surface, occur, from the same or similar morbific causes, in the tissues of the womb or in the peritoneum, or in both, bringing other parts, and perhaps the blood also into a morbid state, thus giving rise to puerperal fever? If the endangium, as Dr. Meigs supposes (Letter 27), "is one of the prime seats of the pathological lesions in erysipelas," and this "blood membrane" is identical in its structure throughout all the tissues of the body, how then can he deny that the erysipelatous disease may occur—with different symptoms it is true—in other than the dermal tissue?

Dr. Meigs seems to think it strange that certain practitioners, with every precaution in regard to clothing and cleanliness, should be the means of communicating puerperal fever. Now, we firmly believe that a medical man may, in consesequence of an erysipelatous taint, carry in his own body, a morbific matter, capable of producing the disease under consideration, without his having previously seen a single patient affected with it.

We have not thought it necessary to point out the frequent mistakes made by the author in his quotations, the repeated employment of German idioms altogether alien from our language, and the numerous familiar terms introduced under a new guise, inasmuch as many errors of this kind might be expected in a work of 661 pages, written, as the author informs us this was, in the short space of six months.

In concluding this very imperfect notice of the work before us, we must be permitted to express our extreme regret at being compelled to dissent from the opinions advanced by the author in any instance, and to condemn a style of writing which he appears to have made choice of under the firm belief, that by it he would get rid of the tediousness and uninteresting character of many of our medical works. Our esteem and respect for the author, and our acquaintance with his high attainments, as well in matters which relate to his own profession, as in general science and literature, and the opportunities we have had of witnessing the urbanity of his manners, with the well-known probity of his life, have caused the desire to commend, in our short review of these letters, to predominate greatly over the disposition to detect faults and blemishes. But our sense of duty to ourselves, to the author, and to the public, has compelled us to present a candid opinion of the manner in which he has performed his important task, and in so doing to occasionally criticise his matter and still more frequently his manner.

The work contains a very large fund of valuable matter, and it will, probably, become a very popular one; but, for this very reason, we the more sincerely regret that Dr. Meigs had not taken more time in its composition, and more care in its revision. The errors committed by an obscure author, in a work of trifling import, can do but little harm, but those committed by one of distinguished reputation, in a work on an important subject, will be apt to be followed by a crowd of "ready imitators." The office of a medical teacher is one of very great responsibility, and every production of his pen exerts an influence more extended and permanent than he had either hoped or anticipated; to such a one *he* should be considered a friend "bonus et prudens." Who

> "Versus reprehendet inertes
> Culpabit duros, incomptis allinet atrum
> Transverso calamo signum; ambitiosa recidet
> Ornamenta; parum claris lucem dare coget;
> Arguet ambiguè dictum; mutanda notabit."

D. F. C.

Art. XVII.—*Etherization; with Surgical Remarks.* By John C. Warren, M. D., Emeritus Professor of Anatomy and Surgery in the University of Cambridge; Surgeon at Massachusetts General Hospital; Honorary Member of the Medical and Chirurgical Society of London; Corresponding Member of the Royal Academy of Medicine at Paris, and of the Academies of Naples, Florence, etc. Boston: W. D. Tickner & Co., 1848: 12mo: pp. 100.

On the Inhalation of the Vapour of Ether in Surgical Operations: Containing a description of the various stages of Etherization, and a statement of the results of nearly eighty operations in which ether has been employed in St. George's and University College Hospitals. By John Snow, M. D., Univ. Lond. R. R. M. and C. S., &c. London: John Churchill, 1847: pp. 88. 8vo.

The extraordinary excitement caused by the announcement of the discovery of a means by which patients could be rendered insensible to the agony inflicted by the surgeon's knife and to the pangs of labour, is beginning to subside, and the serious questions seem now to be attracting attention, whether such means can be resorted to in all cases with success and with safety,—whether there are not some conditions unfavourable to, or which forbid, its use,—what cautions are to be observed in its employment, and which is the best method of applying it? If the materials for the *conclusive* solution of all these questions have not yet been furnished, the facts for that purpose are daily accumulating, and as among the most interesting recent contributions for that purpose, we invite the attention of our readers to the publications, the titles of which we have just given.

Dr. John C. Warren, of Boston, is entitled to the distinction of having the first to perform a surgical operation on a patient rendered insensible to pain by the inhalation of the vapour of sulphuric ether; he has continued to use it in his extensive practice, up to the present time, and he furnishes in his small volume the fruits of his matured observations with the article, founded on an experience with it in at least two hundred cases. The elevated position in the profession which Dr. Warren has long sustained, and the perfect integrity of his character, give importance to his opinions, and must inspire entire confidence in the accuracy of any statements he may make.

Dr. Warren gives a brief sketch of the introduction of the inhalation of ether in surgical practice,—relates the effects which he has observed to be produced by this agent,—presents his views respecting its modus operandi,—considers the mischiefs which it may occasion,—gives an account of his experience with it in various kinds of surgical operations; and draws the following *general* conclusions:—

1st. Inhalation of ether produces insensibility to pain.

2d. Ethereal insensibility, judiciously effected, is not followed by any dangerous consequences.

3d. Its administration is easy, and usually requires but a few minutes.

4th. Individuals of all ages may be safely etherized.

5th. Individuals of the same age are susceptible of the influence of ether in variable degrees.

6th. Surgical operations may be done under the effect of ether, which could not be done without.

7th. Operations very short, and not very painful, especially those about the head and neck, are best done without ether.

8th. The shock of the nervous system is greatly diminished by etherization.

9th. The use of ether has increased the number of successful operations, by encouraging a resort to them at an earlier period of disease.

10th. The use of the sponge is more safe and easy than that of any special apparatus.

11th. A special apparatus is convenient for some peculiar cases.

12th. The existence of chronic pulmonary disease rarely forms an objection to etherization.

13th. Etherization may often be employed advantageously as a substitute for narcotics.

14th. The employment of ether does not retard the healing of wounds, nor give them an unfavourable character.

15th. The pains of death may often be relieved by etherization.

Dr. Warren prefers the sponge to any special apparatus for administering the vapour of ether, "because it requires less effort to inhale through it, and because the atmospheric air introduced with the ether removes the danger of asphyxia."

"The sponge," he says, "should be of an excavated form, in order to accommodate the projection of the nose. The winding indirect channel of the nostrils, the more natural passage for the aerial fluid, diminishes the impulse on the lungs, and the consequent propensity to a troublesome cough. The sponge previously moist, saturated with ether of the purest quality, should be closely applied to the nasal apertures with due caution to prevent the introduction of the fluid into the mouth and eyes; and its position should be occasionally changed, on account of the gravitation of the ether to its inferior part. Some patients prefer employing the sponge themselves, and this is true particularly in regard to parturient females. And so far as our experience has extended, it has given us reason to believe, that the practice of committing the sponge to the patient may be advantageously adopted in a great number of instances. When the lungs are irritated, and cough produced, the sponge may be momentarily removed."

We must content ourselves with referring our readers to the original for further details of the author's views on the subjects referred to, as well as to his opinions regarding the use of ether inhalation in affections of the lungs, in children and infants, in cerebral diseases, and in cutting operations on the mouth and throat, in all which he seems to regard less caution as necessary than, we must say, we conceive to be demanded, on theoretical grounds, as well as from the results of the experiments made by the committee of the Edinburgh Medico-Chirurgical Society, Mr. Wakley and others.

Dr. Snow's volume is highly interesting, as furnishing a better division than had previously been made of the different stages of etherization, and some important directions for the administration of the vapour of ether.

The point requiring most skill and care in the administration of the vapour of ether is, in Dr. Snow's opinion, to determine when it has been carried far enough. To clearly describe the effects of ether inhalation, Dr. Snow divides them into five stages or degrees, premising, however, that these divisions are arbitrary, the different stages running gradually into each other.

In the first degree of etherization, Dr. Snow includes the various changes of feeling that a person may experience, whilst he still retains a correct consciousness of where he is, and what is occurring around him, and a capacity to direct his voluntary movements. In the second degree, mental functions may be exercised, and voluntary actions performed, but in a disordered manner. In the third degree, there is no evidence of any mental function being exercised, and consequently no voluntary motions occur; but muscular contractions, in addition to those concerned in respiration, may sometimes take place as the effect of the ether, or of external impressions. In the fourth degree, no movements are seen except those of respiration, and they are incapable of being influenced by external impressions. In the fifth degree, (not witnessed in the human being,) the respiratory movements are more or less paralyzed, and become difficult, feeble, or irregular.

Generally, according to Dr. Snow, all that the patient remembers of the effects of ether occurs whilst he is under its influence in the first degree only, and his feelings are usually agreeable—often highly so. Dr. S. considers that it is not practicable to perform operations, in the absence of pain, without conveying the effects of ether further than this degree. Whilst the effect of the ether, however, he adds, is going off,—after persons have been completely insensible,—they are not unfrequently free from the pain of an operation, which is still going on, at a time when the mental faculties have returned, together with the special senses of sight and hearing, and when they are consequently in the first degree.

If etherization is not carried further than this degree. it quickly subsides without bearing any appreciable effects; but if the inhalation is continued the second degree succeeds to this.

When the ether is properly administered the patient, according to Dr. Snow, usually passes quietly and quickly through the second degree of etherization without its being manifested in any way. As he is not questioned, the state of his mental faculties does not appear, and he passes rapidly into the next degree. Sometimes, however, when from the tendency of the vapour to produce coughing it is given in a more diluted form than usual. and occasionally, also, from peculiarity of constitution, this degree of the effect of ether is made apparent by gesticulation, words, or attempts to move; and in hysterical females, sometimes by sobbing, laughing, or screaming. The patient often tries, by lifting up his hands or moving his head, to remove the inhaler from his face whilst in this stage. He feels something there interfering with his ordinary respiration, and the purpose and nature of it have passed from his mind; his endeavours are voluntary, but guided by instinct rather than reason. He can often be quieted by language addressed to him, and will do as he is bid, although unconscious of where he is.—as his answers, if he makes any, show. At other times he is obstinate, or regardless of what is said. If the ether is discontinued at this stage of the inhalation, the patient goes back into the first degree, either immediately or in the course of a few minutes, according to the extent he has advanced, or the time he has been kept in this degree.

Dr. Snow thinks that a surgical operation would cause pain, if etherization were not carried further than this degree, although if the pain should not arouse the patient and bring him back to the first degree, he would not remember it. But it would be more difficult for the surgeon to operate with this amount of etherization than without ether.

When the inhalation is continued, the patient passes into the third degree. "If the patient moves or struggles," says Dr. Snow, "when under the influence of ether in the second degree, his movements are guided by volition, though not by knowledge or reason; but if he struggles in the third degree of etherization his movements are not voluntary, any more than the struggling in hysteria or epilepsy. Usually, however, there is no struggling. The patient may have moved his eyes about in the second degree, and even directed them to objects, but in this degree they are stationary, or if they do move, their motions have nothing of a voluntary character. They are sometimes turned upwards as in sleep, but I think not so frequently as in the next degree. The eyelids may be either open, or partly or tightly closed, but in either case, if lifted or moved by the finger, the orbicularis palpebrarum contracts. The breathing is usually regular and somewhat deep; the patient lying still, or, if sitting, having a tendency to slide out of the chair; but occasionally the limbs are rigidly contracted, and when this is the case the patient sometimes holds his breath for several seconds at a time. He may moan in this degree of etherization, but never gives utterance to articulate sounds, which are always an indication that he has not advanced further than the second degree, or has returned to it. Therefore the performance of a surgical operation in this stage would not cause a person to cry out in articulate sounds, unless it roused him, and caused him to return to the second degree; it might, however, cause him to groan and flinch. If this degree is well established, and if the patient has been detained in it, at the same point, by inhaling at intervals, or by inhaling dilute vapour, an operation may usually be performed without producing any other effect than a distortion of the features expressive of pain, and, perhaps, a slight moaning, and an increased frequency of respiration, and, in some instances, a general rigidity of the muscular system. If this degree of etherization is not well established when the operation begins, the first cut may cause a sudden contraction of the whole muscular system. Persons in a full state of health, and more particularly those in a state of plethora, are much more liable to struggling and rigidity in this degree, than those whose strength is reduced by illness; and if from any cause the supply of atmospheric air is limited, and something of asphyxia is combined with the etherization, I believe that the struggle is more liable to occur, and is more severe. There is never any recollection of operations in this degree, even when symptoms of pain have been exhibited, and there is scarcely ever, I believe, any sign of pain in this degree, when it succeeds to the fourth, as the influence of the ether is subsiding. If the exhibition of ether is discontinued in the third degree, the patient goes back into the second degree immediately, or in the course of two or three minutes.

"In the fourth degree all the muscles are relaxed, and the limbs hang down, or rest in any position in which they are supported. The eyelids fall down over the eyes, or remain as they are placed by the finger. The eyes are either turned up or remain central. The breathing is deep, regular, and automatic, and there is often snoring. The muscles of the face partaking in the general relaxation, the countenance is devoid of expression, having a placid appearance as in a sound sleep. Sometimes the lower jaw has a tendency to droop; the mouth is partly open, and the features are so relaxed, that the countenance is altered, and has the vacant appearance seen in paralysis, idiocy, or a helpless state of drunkenness; and if there is at the same time snoring and blowing of the lips in respiration, as now and then happens, an appearance is met with that would be truly alarming, if we did not know that it was only due to an agent which is flying away every moment in the breath, to leave the patient, in a few minutes, without any permanent trace of its having been there. In this degree of etherization the patient always remains perfectly passive under every kind of operation; and as the muscles are completely relaxed, this is the proper stage for the reduction of dislocations. The patient never begins to snore until he has reached the fourth degree, or is passing into it from the third, and from all that I have hitherto observed, I believe that when he snores from the effects of ether, he is always totally insensible to every thing which is done to him. This degree of etherization seldom continues more than two or three minutes after the process of inhalation is left off, and I have never kept the patient in this stage more than five or ten minutes; but in operations of long duration have allowed the effects of the vapour to diminish somewhat from time to time. The integrity of the functions of respiration and of circulation is not impaired in this degree. The breathing is generally deeper than usual, and although it has been somewhat stertorous in two or three instances, yet it continued with great regularity, and the stertor subsided in a minute or two. The pulse is distinct and of good volume, even in patients affected with hectic, in whom, just before the inhalation, it was small and hard. It is usually accelerated, as in all the other stages of etherization. The sensibility of the glottis and pharynx continues in this degree, for the blood which flows backwards in operations on the nose and mouth is all swallowed, none of it getting into the trachea.

"In the fifth degree, as met with in animals inferior to man, they remain motionless and flaccid as in the fourth degree, and respiration begins to be irregular, feeble, or laborious. The muscles of respiration begin to suffer the loss of power which already involved the merely voluntary muscles. The sensibility on which respiration depends, and which has outlasted the special senses and common sensibility, now begins to be abolished under the effects of an increased quantity of ether. This is the stage immediately preceding death when animals are killed by ether, and there can be no doubt that it would be met with in the human being, if the vapour were exhibited so as to increase its effects to a dangerous degree beyond what is ever required. However nearly dead animals may be from ether, if the breathing has not actually ceased when the vapour is discontinued, they always recover, as was stated by the author, at the College of Physicians, when he had the honour of performing some experiments at the conclusion of Dr. Wilson's Lumleian Lectures, on the subject of Pain, in March last. This circumstance illustrates forcibly the great safety of the inhalation of ether, and how much it differs in this respect from asphyxia, and the exhibition of narcotics by the stomach.

"The fifth degree of etherization has only been mentioned as a state to be avoided, and we proceed now to the degree which follows the fourth, when the patient is no longer kept in it; and this is the third degree, as it appears a second time. It is usually less marked now than when it preceded the fourth degree, and struggles and rigidity are less frequent,—seldom, if ever, taking place except they have previously occurred in the same degree, and not by any means constantly, when such has been the case. If struggles do occur, and especially if they are accompanied by moaning, as sometimes happens, and if a surgical operation is going on, it may appear to an inattentive observer that the patient is feeling pain, when such is not the case; for a closer attention will show that the supposed signs of pain are not increased when cuts are made, or ligatures tied on the arteries; and if the ether is not re-administered, and the patient is allowed to recover still further during the operation, it will probably happen that in the second degree he will either lie perfectly calm, or talk in his dreams about subjects totally unconnected with pain, or the operation which is still going on. And it is not to be supposed that he is becoming less sensible as the effects of the narcotic are subsiding. I believe that pain is seldom felt in the stage of which we are treating —the third degree succeeding the fourth—and of course never remembered afterwards, as there is no knowledge or mental perception of it. This stage of etherization seldom lasts longer than from two to four minutes before it gives place to the second degree, if the inhalation is not resumed.

"The second degree is usually much better marked as the patient is recovering from the ether, than when he is getting under its influence; it also lasts much longer at this time, the reason of which is obvious; for when he is inhaling the vapour he is quickly removed from this into the third degree, but when the inhalation is discontinued the vapour is got rid of, in a ratio varying directly with the quantity in the blood, which is a constantly decreasing ratio. The blood, in passing through the capillaries of the lungs, shares its ether with the air taken into the air cells, and, consequently, the process of de-etherization becomes slower as it goes on. For this reason, also, this degree continues longer than the third, often lasting five minutes, and occasionally more than twice that period. The dreams which patients so often say that they have had during the operations, take place, I believe, only in the second degree of etherization; and generally in the recurrence of this degree, as the effects of the ether are subsiding, and more commonly after than during the operation. If the patient talks, it often happens that what he says is in accordance with what he afterwards remembers of his dreams, which often refer to early periods of his life; and a great number of patients dream that they are travelling. The impression of the length of the dreams can of course be no argument as to how long the person was dreaming, and that impression is often of a longer time than the whole period of insensibility; and I think that there is every reason to presume, that there can be no dreams or ideas of any kind in the third and fourth degrees of etherization, and that for a short time there is not only, as in a sound sleep, the absence of mental functions, but also the impossibility of their performance. Indeed, from a comparison of what patients sometimes express by words or gestures under the influence of ether, with what they say of their dreams, it would appear that the dreams which are remembered occur only when the patients are fast emerging from the second degree into a state of complete consciousness. Some of the mental states met with in this degree are highly interesting in a psychological view, but the description of them does not form a necessary part of this small treatise. The laughing and crying, which are now and then met with in this degree, are not always the result of joy or sorrow, or even connected with any state of mind corresponding to the expressions, but resemble the laughing and crying of hysteria. The patient is often incapable of pain in the stage which we are considering, but not always so; very commonly he is so in a part of this stage, but if the operation continues he begins to show signs of feeling it, and the inhalation has to be resumed before he passes into the first degree.

"After the patient has recovered his consciousness of surrounding circumstances, there is usually a degree of exhilaration, or some other altered state of the feelings for a little time,—accompanied, sometimes, with a little confusion of the mind, and inability to walk steadily. This, which I have called the first degree of etherization, subsides more slowly than the other degrees, remaining, in some instances, half an hour in a marked degree, and to a slight extent for two or three hours."

Dr. Snow appears to place few restrictions to the use of ether inhalation. "I am not aware," he says, "that any state of the patient with respect to age, constitution, or disease, positively contraindicates the use of ether during a surgical operation. The patients to whom I have given it have been of all ages, from early childhood to nearly eighty years—six of them being upwards of seventy. They have been in the most different states of general health; two or three had symptoms of tubercles in the lungs; one, of whom I shall speak afterwards, had extensive disease of the heart; two or three had been subject to attacks of congestion of the head, and yet there have been no ill consequences from the ether in any case, and not even any unpleasant effects to counterbalance its advantages, except sickness and vomiting in a few instances. There are, however, certain states of the body in which ether sometimes acts less pleasantly and favourably than in others; but it fortunately happens that these are the states in which we seldom find patients who require surgical operations. Persons in robust health are sometimes less promptly and easily made insensible than others, and are more liable to excitement in the second degree of etherization, and to struggling in the third degree, and also to have a headache after the ether. Such persons, however, do not often require even a trifling operation, and if they do so, a little abstinence and purgation will place them in favourable circumstances for ether, if they wish to have it. And, if a person in robust health should require an operation on account of an accident, the temporary depression consequent on the injury, and usually, also, loss of blood, would serve as a preparation. On the other hand, insensibility is induced with great ease in persons debilitated by long illness, and in children under all circumstances. Children are, indeed, amongst the most favourable subjects for ether, recovering from its effects as promptly as they are brought under its influence, and it possesses more than the usual advantages in their cases, as, without it, their struggles would often interfere with the performance of the operation."

Dr. Snow considers that a knowledge of the strength of the vapour of ether, is essential to a correct determination of the state of the patient at all times; and he therefore prefers to administer it, with a suitable apparatus, as otherwise, the proportions of air and vapour cannot be determined. He has contrived a convenient instrument for the purpose, but a description of it would not be intelligible without the drawings.

The position of the patient during inhalation Dr. Snow conceives to be a matter worthy of consideration. "In nearly all capital operations," he says, "the position which the surgeon would select, independently of the ether—viz. on the back, with the head supported on a pillow—is a very favourable position for inhalation. For operations on the anus, the patient has to lie on the side, with the knees drawn up, as it would be impossible for him to stand, or even to kneel, and lean over a chair or table, when insensible; and the recumbent posture, I believe, is as convenient for the surgeon, and would be at least equally so for the patient, even if he had to suffer the pain. Sitting upright in a common chair is not a good position for inhalation, and should, therefore, if possible, be avoided. It has answered very well in a number of cases, but on two or three occasions caused some difficulty: either from the patient, when insensible, having a tendency to slide off the chair, or from his stretching his limbs out, in the second or third degree of etherization, when it became impossible to keep him seated. If the patient is obliged to be seated, a chair with a high back, to rest the head against, is the best seat. The dentist's chair answers very well for his operations, as the patient is partly reclining, and has the head supported.

"It is generally the best plan to place the patient, before inhaling, in just the position that will be suitable for the operation, that there may be no delay when insensibility is induced. Sometimes, however, the patient may be first rendered insensible, and then moved, especially when moving causes great pain, as in some cases of diseased knee. The tourniquet, or the bandages for lithotomy, can be applied whilst the inhalation is going on, but the surgeon should have all his instruments in readiness before the inhalation."

Dr. Snow maintains, that the production of a state of excitement by the inhalation is not a sufficient reason for abandoning its use. "I understand," he says, "that the ether has been often left off, and given up as a failure, on account of the excitement produced by it, under an impression that it was producing an opposite effect to its usual one, and acting as a stimulant instead of a sedative. Guided by a few experiments on small animals, made in January, I acted on the principle that there is no person who cannot be rendered insensible by ether, and looked on the excitement as the occasional result of the cerebral functions being disturbed by a quantity of ether insufficient to suspend them altogether. If the patient goes on breathing the ether, we may rest assured that he will soon become quiet; especially, if he begins to breathe deeper, as often happens during the state of excitement, when a few inspirations make him quite passive. It can scarcely be required to interrupt the process, unless the patient should hold his breath, but if he do, the face-piece should be removed, or the valve opened for a moment, and the process then resumed again. It is consolatory, however, to know that if one is obliged to desist, insensibility will often be induced, on the process being resumed, without any excitement or struggling. It is advisable to begin again as soon as the patient is calm, and, if possible, before he has relapsed into the first degree, or he will perhaps want to make a long speech. I prefer always to go on without stopping, and let the ether subdue the excitement it has produced.

Dr. Snow is quite fearless in his use of ether. "If instead of a quiet passive state," he says, "there is struggling, or great rigidity of the limbs in the third degree, it is necessary to wait for the next degree—that of complete relaxation—before the operation is begun. The involuntary struggling is now and then considerable in the third degree,—in one case, to be subsequently mentioned, resembling an epileptic paroxysm, the patient, however, being subject to epilepsy. There is occasionally also a rigid state of the whole body, which, in one instance, took the form of opisthotonos, but the patient, a boy, was heated and out of breath, when he began to inhale, by exerting himself for some time previously, in opposition to the traction by pullies which was used in attempting to reduce a dislocation of the hip. If the patient goes on breathing steadily, however, he very quickly becomes passive, and lies still. The only circumstance which can cause any difficulty is his holding his breath, which he sometimes does, not from the pungency of the vapour, as in the earlier stages, but, apparently, from spasmodic contraction of the muscles of respiration. In two or three cases the breathing was interrupted till the face became quite purple, but the patients soon went into the fourth degree, on its commencing again with deep and quick inspirations. If the skin becomes inclining to purple, the face-piece may be removed for half a minute, if it is thought proper, for the patient to breathe unetherized air until the skin resumes its usual colour; but there need be no alarm, as the breathing always becomes extremely regular when the next degree is attained, and the inhalation need never be given up at this stage, as there can be no danger from ether when the limbs are rigid; and it is better not to begin the operation till the respiration becomes equable and regular, but to wait for the fourth degree in all cases in which the third is at all unfavourable.

"There are never any strong demonstrations of pain in the third degree, and a number of surgical operations may be performed without carrying the etherization further,—generally, without any symptoms of pain,—but, in some cases, with the result of a little flinching or moaning, and perhaps a contraction of the features. These very slight tokens of obscure sensation, of which the patient knows nothing, and which do not at all interfere with the operation, may, however, be disregarded when they do occur.

"If the inhalation has been continued, and the operation deferred on account of movements or rigidity, the latter may be commenced as soon as the patient becomes still, and his muscles relaxed. If there is the least approach to snoring, whether there is complete relaxation of the muscles or not, the operation may always be commenced, and judging by what I have seen, will never elicit any signs of sensation."

"Insensibility to pain may be kept up," according to Dr. Snow, "for a long time without risk, by allowing partial recovery from the effects of the ether occasionally. I lately kept an elderly gentleman quite oblivious for two hours and a half after Mr. Liston had applied a thick paste of chloride of zinc to a large ulcerating tumour on his face. Each time that he began to feel the smarting the ether was resumed,—at first, after intervals of ten minutes; then, of a quarter of an hour; and finally, of twenty minutes; the recoveries becoming each time more complete before the pain recurred. But the patient had no recollection of them, for each time that he recovered his consciousness, he asked if Mr. Liston had gone without applying the caustic. At the end of two hours and a half, having been allowed to recover more completely than before, he considered that the pain was not more than he could bear, and the inhalation was not resumed. Five fluid ounces of ether were used, and no effects of any kind followed it, unless that the pain, for some hours, was not so great as it probably would have been."

Dr. Snow states "that in all the cases I have witnessed, the patients have recovered their mental faculties very promptly and completely after the conclusion of the operation,—generally within a few minutes,—and in two or three cases only has the period of recovery been delayed for half an hour. I do not think that anything is ever required to promote the return to sensibility. When the patient is sufficiently etherized to feel nothing of a surgical operation, he is far beyond the reach of stimulation by ammonia, cold affusion, or anything else; and when he is so far recovered that these things would make an impression, there is not long to wait for his complete recovery. Elderly people are slower in recovering than young ones; as their respiration is less active, and the ether takes a longer time to evaporate in the breath. For the same reason, if sickness has been caused by the ether, the patient is longer in recovering, as it depresses the respiratory movements.

"Although many patients recover their consciousness at once, as out of a natural sleep, yet there is often a short period during which the mind wanders as it is reviving from its temporary suspension; and during this time it is advisable not to talk to the patient, or ask him any questions, but let him remain silent, if, as is generally the case, he will. If, however, he talks in an excited way, a word or two may be addressed to him to calm him; and this condition lasts but a very few minutes."

Except a headache on one or two occasions, the only unpleasant effect that Dr Snow has seen from the inhalation of ether has been sickness and vomiting, which are only occasional results.

It must be admitted that Dr. Snow has been most fortunate in his use of ether, and while we have thought it important to lay before our readers the results of his experience we must not do so without referring to the later observations of others recorded in another part of this Number, (see Anæsthetic Agents in Quarterly Summary,) where they will find facts recorded calculated to convince even the most enthusiastic advocate of the use of Anæsthetic agents, that caution is required in their use—much more, we conceive, than Dr. Snow seems to consider to be necessary.

Art. XVIII.—*Report of the Board of Trustees of the Massachusetts General Hospital,* presented to the Corporation, at their Annual Meeting, Jan. 26th, 1848. Boston, 1848. 8vo. pp. 72.

The Massachusetts General Hospital, in the comforts of its accommodations, the convenience of its arrangements, and the ability of its professional staff, stands second to no institution of its kind in this country; and it is gratifying to receive the assurance furnished by this report, that its finances are in a flourishing condition. Within a short period the corporation has received some princely bequests, (one of $100,000, and another of 50,000,) and many munificent donations, (six of $2000; nineteen of $1000; thirty-three of $500, &c.,) which have enabled the trustees to make extensive additions to the hospital buildings, by which its means of usefulness have been trebled.

In this hospital, as all our readers are aware, the first surgical operation on a patient, rendered insensible by the inhalation of ether, was performed, and the trustees, regarding this "as the most important event which has occurred in the history of this institution, have made an extended investigation into the origin of the inhalation of ether as a means of preventing pain in surgical operations.

The investigation seems to have been conducted by the committee who took charge of it with great care and fairness, and an earnest desire to arrive at the truth, and the statement which they have drawn up appears to be so well founded and so conclusively to settle the precise degree of credit to be awarded to each of the rival claimants to the discovery, that we shall transfer it to our pages.

"A recent publication, by Dr. George Hayward, entitled '*Some account of the first use of Sulphuric Ether by Inhalation in Surgical Practice*,' gives a clear and simple history of this discovery, and of all its attending circumstances, *as connected with the hospital.* It is interesting to trace the earlier successive steps by which the grand result was at last obtained. These are, to a considerable extent, recapitulated in the *British and Foreign Review* of April last. It is there stated, that, as early as 1779, 'we find many experiments on men and animals on the inspiration of different kinds of air.'—'Dr. Beddoes, in his work on *Factitious Airs*, published at Bristol in 1795–6,' 'gives several communications from Dr. Pearson on the inhalation of ether,' also 'a letter from one of Dr. Thornton's patients, in which the patient himself gives an account of the inhalation of ether by Dr. Thornton's advice, and its effects in a case of pectoral catarrh. He says "It gave almost immediate relief both to the oppression and pain in the chest." On a second trial, he says he inhaled two teaspoonfuls of ether, which, he adds, "gave immediate relief as before, *and I very soon after fell asleep*, and had a good night's rest."'—'Another curious case is given by Dr. Thornton, in which inhalation was prescribed for the relief of a very *painful inflammatory affection of the mamma*, and with very beneficial effect.' The reviewer says, 'At this time, and subsequently, Dr. Thornton was in the common habit of administering the vapour of ether to his patients.'—'In all these trials, no one had distinctly in view the removal or abolition of pain, though this was attained, indirectly, in Dr. Thornton's case. But Sir Humphrey Davy, who, it is well known, first began his chemical career by assisting Dr. Beddoes,' 'seems not only to have contemplated such a result by means of medicamentous inhalation, but to have actually put it to the test of experiment on himself. The medium of his experiment, however, was not ether, but the nitrous oxide. Sir Humphrey tells us, that on two occasions the inhalation of the nitrous oxide removed headache. He also tried its effect *in removing intense physical pain*, while he was cutting a wisdom-tooth.' 'He says: "*As nitrous oxide, in its extensive operation, appears capable of destroying physical pain, it may probably be used with advantage during surgical operations in which no great effusion of blood takes place.*"'—'In the article "Ether," in the *Dict. des Sci. Med.*, vol. xiii., published in 1815, we find the author, Nysten, speaking of the inhalation of *ether* as familiarly known, and as employed for the relief of some pulmonary diseases, and also for *mitigating the pain of colic.*'—To an eminent medical friend, the committee are indebted for the fact, that, in *Pereira's Materia Medica*, published in London in 1839, it is expressly stated that '*the vapour of ether is inhaled* in spasmodic asthma, chronic catarrh, and dyspnœa, hooping-cough, and *to relieve the effects caused by the accidental inhalation of chlorine gas.*' Dr. Charles T. Jackson, of this city (as we learn from a pamphlet published in 1847, under his own sanction and authority, entitled, '*Discovery by Charles T. Jackson, M. D., of the Applicability of Sulphuric Ether in Surgical Operations;* by Martin Gay, M. D.'), has distinctly admitted, that he 'was early impressed with the remarks of Davy* concerning the remedial agency of gaseous matters.'† As a learned chemist, he was also doubtless familiar with the publication last referred to. Accordingly, two or three years after its appearance, or in the winter of 1841–2, 'he inhaled sulphuric ether, to obtain relief from the very unpleasant sensations caused by an accidental inhalation of chlorine gas.' In other words, having accidentally inhaled chlorine gas, he resorted to the prescribed remedy. 'He at first breathed the ether without producing unconsciousness, but derived from it some relief. Afterwards, still suffering from the chlorine, he continued the experiment to such an extent as to produce complete general insensibility.' Subsequently, under precisely the same circumstances, he also prescribed it to one of his students. He had, as he states, on one previous occasion, also about A. D. 1841, inhaled it with safety to the extent of producing 'a peculiar sleep or unconsciousness.' '*Before his observations, a state of complete insensibility, from this cause, was considered by the best authorities as one of greater or less danger; and it had been known to produce fatal results. Young persons had breathed this vapour to the extent of producing unconsciousness, and in some cases without injury.*'

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* Dr. Jackson, in a letter published with Dr. Gay's pamphlet, says, "My interest in the respiration of gases was first excited by Sir H. Davy's experiments; and, since I became acquainted with them, the subject has always seemed to me to deserve further investigation."

† Daily Advertiser of March 1, 1847.

"Dr. Jackson, then, had not discovered any new power or property of ether. *It was known that it could produce insensibility;* and that *that insensibility*, though sometimes fatal, *was sometimes unattended with injury.* It was also known as a specific against the noxious effects of chlorine gas. He had merely tested these known propositions, and found them true in his own person. By so doing, he had formed, as he states, a strong opinion, that pure, rectified, sulphuric ether could be inhaled with safety. But its efficacy for the prevention of pain he had, thus far, only verified by actual experiment in the case specified in the text-books, viz., *where chlorine gas has been previously inhaled.* This experiment is stated in Dr. Gay's pamphlet with great particularity, *as if it had been one before unknown.* The motives which led to it, and the philosophical inferences deduced by Dr. Jackson, are set forth with much minuteness. It seems indeed to be relied on as the very foundation of Dr. Jackson's claim, as the discoverer of the safety and efficacy of sulphuric ether. *It still obviously remained to be proved*, that it could be safely and effectually inhaled for the prevention of pain under other circumstances.* To establish this point, Dr. Jackson never attempted an experiment on man or animal. It is true that 'he communicated to several persons (and, among others, to Mr. Bemis, an eminent dentist, in 1842) his observations and conclusions respecting the prevention of pain in surgical operations;' and, in February, 1846, he informed a student in his laboratory (Mr. Joseph Peabody), who wished to have two teeth extracted, 'that insensibility would be produced by the inhalation of sulphuric ether-vapour. He advised him to breathe it, and to submit to the operation, while in the sleep induced thereby.' But what effect did his advice have on Mr. Peabody? 'He at last gave up the experiment, because his father, a scientific man, feared irritation of the lungs might ensue,—*because the best authorities on the subject were arrayed against the opinion of Dr. Jackson*,—and because he was unwilling to incur any risk for so slight an operation.' And such was really the general state of public opinion, among men of science, down to that time.† *The discovery was yet to be made by one who was willing to try the experiment, notwithstanding the best authorities on the subject were against it.*

"Further, it does not appear that, from 1841–2 to 1846, Dr. Jackson suggested its use, except for the slighter and instantaneous operations of the dentist. Familiar, as he confesses himself to have been, with the views of Sir H. Davy, who had so long before suggested the use of the nitrous oxide in operations attended *with little effusion of blood*, it was very natural that Dr. Jackson's thoughts should have been exclusively turned to the use of sulphuric ether in the class of minor operations, which had been thus specified by so distinguished a philosopher. It would seem, indeed, clear that he had not the remotest conception of its universal applicability and importance. Such, indeed, is the only satisfactory explanation of the fact, that, during an interval of nearly five years, he never once tested his discovery, or caused it to be tested, by a single experiment. Upon this point, indeed, the advocate of Dr. Jackson says, 'It was more than a quarter of a century after Jenner first heard the milk-maid express her belief in the protective influence of cow-pox, that he vaccinated his first patient;' but, he adds, '*during which period he was much engaged in the investigation of the subject*." But ether seems to have received only a casual and incidental attention from Dr. Jackson. To make the cases at all parallel, it must be shown, that Jenner, after vaccinating his first patient, waited five years before vaccinating another, *with a like apparent unconsciousness of the importance of his discovery*. Indeed these two discoveries are of so totally opposite a character, that they suggest a striking contrast, instead of a parallel. In the one case, the truth could be ascertained only by repeated experiments and patient investigation. It had to fight its way against the inveterate prejudices of the world. In the other case, it is fully and for ever demonstrated by the first successful capital operation; and it is at once hailed, as it were, with delight by all mankind.

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* Dr. Gay says himself, "It still remained to be ascertained, whether this unconsciousness was so perfect, that, during its continuance, no pain would be produced by wounding instruments."—*Pamphlet*, p. 10.

† See Mr. Metcalf's letter to the Committee, p. 498.

"Within this period, Dr. Horace Wells, of Hartford, used the nitrous oxide while engaged in extracting teeth. His claim, *as a discoverer* in this matter, must yield entirely to that of Sir H. Davy, who, after actual experiments, had, as it were, distinctly suggested the use of this very agent for this object so many years before. There are, doubtless, reasons, founded in the nature of this agent, which have prevented these suggestions of Davy, in regard to it, from having been long since realized. And, whatever may have been the result of Dr. Wells' experiments elsewhere, it is certain that his public performance of them in Boston in 1844 was an entire failure. It is also stated by Dr. Wells, that, as early as November, 1844, 'a surgical operation was performed at Dr. Marcy's office under the influence of *sulphuric ether*;' and he adds, 'The doctor then advised me by all means to continue the use of the nitrous oxide.' And it seems that the result of this one experiment was such, that, pursuant to this advice, he abandoned the idea of the further use of ether. His claim, therefore, to the discovery in question appears in this view also to be equally unfounded. We cannot but believe, that it has been without due consideration that his claim has received the official sanction of his native state of Connecticut. Indeed, a published letter from Dr. Wells to Dr. Morton seems necessarily to exclude the idea, that he himself claimed to have made any such prior discovery.* All must, however, accord to him the honour of having been an earnest and persevering seeker after truth in this very path of inquiry. And his labours and experiments may, we think, fairly be considered as having had some indirect influence, though not themselves attended with direct success.†

"Dr. W. T. G. Morton, of this city, must now be mentioned. He had been a student of Dr. Jackson's and formerly a partner of Dr. Wells. He, therefore, occasionally availed himself of the advice of the former; and he was aware of, and (upon the public occasion in Boston before referred to) had taken part in, the experiments of the latter in the use of nitrous oxide. It does not appear that Dr. Wells had ever mentioned in Boston his one experiment with sulphuric ether. There is evidence, entirely satisfactory, that Dr. Morton's attention had been for some time engaged upon the subject;‡ that he had purchased and experimented upon sulphuric ether; that, as early as July, 1846, a highly intelligent chemist of

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* The letter referred to is as follows:—

"*Hartford, Conn., Oct.* 20, 1846.

"Dr. Morton.—Dear Sir: Your letter, dated yesterday, is just received; and I hasten to answer it, for fear you will adopt a method in disposing of your rights, which will defeat your object. Before you make any arrangements whatever, I wish to see you. I think I will be in Boston the first of next week, probably Monday night. *If the operation of administering the gas* is not attended with too much trouble, and *will produce the effect you state, it will undoubtedly be a fortune to you, provided it is rightly managed.*

"Yours in haste, H. Wells."

† See, accordingly, the letter of Mr. Metcalf, in page 498.

‡ A pamphlet—entitled, "Some Account of the Letheon; or, Who is the Discoverer? By Edward Warren; Boston, 1847"—contains various depositions proving the performance of experiments, &c., by Dr. Morton. Several of the deponents are personally unknown to the Committee; but Thomas R. Spear, jun., is highly spoken of, as a person of veracity, by Hon. John P. Bigelow and Charles Sprague, Esq., two of our most respectable citizens. William P. Leavitt is also spoken of to the Committee, as

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a credible witness, by Nathaniel G. Snelling, Esq., the well-known president of the late Massachusetts Fire and Marine Insurance Company. Francis Whitman, one of these deponents, has recently died; his truthfulness seems to be unquestionable. Caleb Eddy, Esq., is personally known to one of the Committee as having had the most intimate relations with Dr. Jackson in past years; and the testimony of his son, R. H. Eddy, Esq., which will be hereafter alluded to, is, we think, entitled to the most implicit credit. These two last depositions relate especially to Dr. Jackson's connection with this discovery. Dr. Jackson, indeed, objects to both of these depositions, because the son was interested in the patent, and was therefore a party in the case; and because the father would naturally take the same views as the son in a matter involving his pecuniary interests. There are also depositions of two surgeon-dentists, Grenville G. Hayden and John C. Hardy, with neither of whom, however, are the Committee acquainted. Dr. Hayden formed a connection in business with Dr. Morton in the summer of 1846, and Dr. Hardy was formerly a student with Dr. Morton. The testimony of the latter witness is as follows, viz.:—"In the autumn of 1844, I was present, at the request of Dr. W. T. G. Morton, to see a preparation administered for the purpose of preventing pain in extracting a tooth. Dr. Morton at that time expressed great interest and solicitude in these experiments, and also at the same time requested me to assist him in making some further experiments, in case they succeeded."

It may not, perhaps, be irrelevant, in this connection, to mention, that Dr. Morton, on May 3, 1845, (as appears by a bookseller's bill of that date, exhibited to the Committee,) purchased seven volumes upon surgery, physiology, anatomy, and chemistry; and likewise "Pereira's Materia Medica,"—*a work which contains various details of experiments performed upon dogs, &c., with sulphuric ether.* But upon this circumstance the Committee lay no great stress. The testimony of George O. Barnes and of Dr. Keep, published with Dr. Gay's pamphlet, seems to show that Dr. Morton did not realize the importance of admitting any atmospheric air with sulphuric ether, during his early experiments; so that he probably had not, to that time, acquired a thorough knowledge of its properties.

Dr. Hayden's testimony clearly relates, in great part, to experiments performed with certain "ether" bought of Stevens, Brewer, and Co., in August, 1846, and contained in a demijohn. And Leavitt's and Spear's testimony apparently relates wholly to the same "ether." And, of this "ether" Whitman says, that he told Dr. Morton he knew what it was,—that it was *chloric ether*. From this, Dr. Jackson infers a wish, on the part of the other deponents, to suppress the fact that it was "chloric ether," and to deceive the public into a belief that it was *sulphuric ether*. From Dr. Hayden's supplementary certificate, appended to analyses of Dr. Gay and Mr. Burnett, it would seem, however, that he now distinctly alleges it to be *unrectified sulphuric ether*. Further, Whitman's testimony, though it does not state the performance of actual experiments, is, in several particulars, highly confirmatory of Spear's and Leavitt's. And we think, that the remark testified to by Whitman, as made by him on this one occasion to Dr. Morton, in respect to the contents of the demijohn being chloric ether, is a very different thing from a deliberate statement, in his deposition, that the substance really was chloric ether. It seems to the Committee as if he had said, "You are very secret and mysterious in your movements; but I think I have found out what is in the domijohn: I am satisfied that it is chloric ether." Indeed, the whole of this alleged discrepancy is rendered entirely immaterial by Mr. Metcalf's letter, contained in the next note, which proves affirmatively, and beyond all controversy, that Dr. Morton really was acquainted with, and had had in his possession, sulphuric ether before this purchase from Stevens and Co. Further, this argument of Dr. Jackson is very remarkable, when we consider that, in the specification accompanying the patent, he does not, in the statement of his own claims, rely *exclusively* upon the use of *sulphuric ether*. Its terms would probably be broad enough to include chloroform. Dr. Jackson also comments on the omission of Dr. Morton to state at first to Mr. Eddy the fact, that he had ever performed any experiments before his interview with Dr. Jackson, September 30, 1846. This omission, it would seem, however, that Mr. Eddy himself regards as sufficiently accounted for by the circumstances of the case. Dr. Jackson also remarks on the fact, that Leavitt, in his testimony, admits that the purchase from Stephens, Brewer and Co., was made by him, under Dr. Morton's orders, in the name of another person, as if to be sent into the country. This

this city had a conversation with him upon its medicinal qualities;* and that, at this very time, he made an arrangement in business, the express object of which was to relieve himself from the immediate duties of his profession, in order to

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system of concealment and secresy may be a subject of regret; but we do not think that the general credibility of the witness is at all affected by this circumstance. The Committee have preferred, throughout this investigation, to confine themselves entirely to facts proved by third persons; disregarding, as much as possible, all unsupported verbal statements and admissions of either party; as they had reason to believe, that these had been often made when in a state of excitement, or under circumstances rendering the language liable to be misconstrued or misunderstood.

[*] Mr. Theodore Metcalf—in a note to Dr. Morton, dated Dec. 20, 1847—says, "I can only state, that I remember to have met you at Mr. Burnett's store early in the summer of 1846, and to have had a conversation with you in regard to the medicinal qualities of *sulphuric ether*, a quantity of which you were then purchasing. I cannot, as you desire, give the precise date, but know it to have been previous to July 6, as I left Boston on that day for a tour, from which I have but a few weeks returned." Mr. Metcalf also, subsequently, sent the following letter, before referred to.

Boston, Jan. 26, 1848.

"Sir,—In answer to your inquiry respecting the nature of my interview with Mr. Morton, I can only add to my note of December 20, that the conversation was commenced by some inquiry on his part, concerning the nature and effects of sulphuric ether, a vial of which he then held in his hand.

"In answer to his several questions, I gave him such information as he could have obtained from any intelligent apothecary at that time, and also related to him some personal experience as to its use as a substitute for the nitrous oxide; adding the then generally received opinion, that its excessive inhalation would produce dangerous, if not fatal consequences. Some reference was made—but whether by Mr. Morton or myself, I cannot remember—to the unsuccessful experiments of his former partner, Mr. Wells, with the nitrous oxide. It was one of those casual conversations which quickly pass from the mind; and it was for the first time recalled to my memory, upon seeing, months after, in a French journal, an account of the anæsthetic effects of ether, the discovery of which was ascribed by the writer to a Boston dentist.

"I am, sir, very respectfully, your obedient servant,

"N. I. Bowditch, Esq." "THEODORE METCALF."

Mr. Metcalf is the well-known predecessor of Mr. Burnett, and, as an apothecary, has long possessed, in the highest degree, the confidence and respect of the medical profession; and there is no one in the community, whose personal character would give higher authority to any statement of facts distinctly and positively made. *It is therefore certain, that Dr. Morton, months before his interview with Dr. Jackson, purchased sulphuric ether* at the very shop where Dr. Jackson at last advised him to buy some more (pure and rectified), with which the successful experiment was made. And it may be remarked, that the details of the conversation, given by Mr. Metcalf, seem conclusively to show with what intent Dr. Morton was then making his purchase.

The Committee may claim the entire credit of obtaining this most important testimony. Mr. Metcalf, having been absent in Europe, had never been applied to by Dr. Morton, who called upon him only at the express suggestion of the Committee. Besides its direct bearing in the case, it confirms the statement of Dr. Hayden, who had previously testified to the purchase of a small quantity of sulphuric ether at Mr. Burnett's; and not only so, but it seems to prove that Dr. Hayden could not have any motive for misrepresenting the contents of the demijohn, since the point at issue was Dr. Morton's *entire ignorance* of sulphuric ether, not his *greater or less knowledge* of that agent. Dr. Gay, from the omission in the published affidavits of Dr. Morton to state the kind of ether used in his experiments, infers his total ignorance of *sulphuric ether*, down to September 30, 1846. Indeed, Dr. Jackson stated to one of the Committee, that, when Dr. Morton had his interview with him on September 30, 1846, he (Dr. Morton) had never seen sulphuric ether—did not even know it by sight—was wholly ignorant about its nature and qualities—and got from him, for the first time, the idea of using it. To the suggestion that this ignorance was feigned, he replied that he knew it to be real; and remarked, "The Committee may consider it as a *certain fact* in the case. It can be proved beyond all reasonable doubt whatever."—The Committee, being aware of Mr. Metcalf's statement, suggested that an devote himself to something which would make an entire revolution in dentistry.* But we do not think it at all material to go into the minute details of this evidence. Skillful in his particular department, he makes no pretensions to general science. Seeking for this discovery,—acquainted with this very agent,—he calls upon Dr. Jackson; wishing, without betraying his own motives and objects, to obtain all the information which Dr. Jackson's extensive researches and experience might enable him to furnish. Dr. Jackson, at this interview, voluntarily gives him the strongest assurances of the expediency and safety of using pure rectified sulphuric ether; informs him where he can get some of a good quality;† and advises him, as he had more than once advised others, to try the experiment.‡ Unlike others,

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unimpeachable witness had stated that, three months before that interview, Dr. Morton had bought sulphuric ether, and conversed with him respecting its medicinal qualities. Dr. Jackson replied that it could not be,—that it must be an entire mistake, &c. The Committee learned, two days afterwards, from Mr. Metcalf, that he had himself previously informed Dr. Jackson of the fact, that, *before he went to Europe*, he had seen Dr. Morton buying sulphuric ether, and conversed with him about its qualities. He had not, indeed, stated to Dr. Jackson the precise time when this interview took place; but the Committee think, that this circumstance affords evidence that Dr. Jackson's conclusions in this case have been formed without a careful and deliberate consideration of the facts, even *when brought directly within his notice.*

* To Richard H. Dana, Jun., Esq., the well-known author of "Two Years before the Mast," the Committee are indebted for the following letter, and the enclosed note from his kinsman Francis Dana, Jun., M. D., a surgeon dentist of this city, and formerly house-physician of this institution:—

"30, *Court-street*, *Jan.* 8, 1848.

"My Dear Sir,—On the 30th June, 1846, Dr. W. T. G. Morton come to my office, in company with Dr. G. G. Hayden, to have a contract drawn, the object of which was to provide, that Dr. Hayden should take the entire charge of Dr. Morton's business for a time, in order that Dr. Morton might be able to give his attention to something else. Dr. Morton did not state what it was that he was engaged upon; but my impression, founded on my own recollection alone, is very strong, that he said it was something of great importance, which, if successful, would revolutionize the practice of dentistry. I am entirely confirmed in this impression by Dr. Francis Dana, whose note on the subject I enclose. It was agreed that I should keep the instrument, and I have it now before me. It bears date June 30, 1846, and was to take effect the next day. The charge in my account-books for drawing the contract is of the same date.

"Truly your friend and servant,

"Nathaniel I. Bowditch, Esq." "RICHARD H. DANA, Jun."

Note enclosed in the preceding.—"To R. H. Dana, Jun.—Dear sir: During the summer of 1846, in the course of a conversation on the subject of dentistry, you mentioned to me that Dr. Morton had told you he was engaged upon something of great consequence, which would revolutionize the practice of dentistry. This conversation was during the extreme hot weather of that summer, a long time before the discovery of the effect of ether, in producing insensibility during operations, was announced; I should say, so well as I can judge, between two and three months.

"*Jan.* 10, 1848." "FRANCIS DANA, Jun."

† Viz. at Mr. Burnett's shop, where Dr. Morton had himself purchased sulphuric ether three months before.

‡ In a memorial dated July 31, 1847, transmitted by Dr. Morton to the French Academy, and, as he informs the Committee, subsequently presented by Arago to that body, we find, accordingly, the following paragraph:—"I am ready to acknowledge my indebtedness to men and to books for all my information upon this subject. I have got here a little, and there a little. I learned from Dr. Jackson, in 1844, the effect of ether, directly applied to a sensitive tooth; and proved by experiment, that it would gradually render the nerve insensible. I learned from Dr. Jackson, also, in 1844, the effect of ether when inhaled by students at college, which was corroborated by Spear's account, and by what I read. I knew of Dr. Wells's attempt to apply nitrous oxide gas for destroying pain under surgical operations. I had great motive to destroy or alleviate pain under my operations, and endeavoured to produce such a result by means of inhaling ether; inferring that, if it would render a nerve insensible when directly applied, it might, when inhaled, destroy or greatly alleviate sen-

Dr. Morton determines to do so. He does not yield to any doubt, from the opposite array of authorities. He is willing to take the risk. Accordingly on Sept. 30, 1846,—after having, as he states, first inhaled it himself,—he finds a patient who consents to permit him to use it, *and extracts a tooth without pain.* It was, of course, at first still uncertain whether the insensibility so satisfactorily obtained during this brief operation would continue through a more prolonged one. Dr. Morton, on the next day, calls on Dr. Jackson, and informs him of his success; and the latter states, that he advised Dr. Morton to get the surgeons of the Hospital to permit its use.* He does not himself, however, see any of these officers. He is not himself present at any of the early operations.† He fears that Dr. Morton may recklessly do some great mischief. He refuses to give him a written certificate of the safety of the application of ether. He openly and strongly expresses his regret, that he had ever communicated to Dr. Morton any information upon the subject.‡ Certainly, then, with respect to all these subsequent experiments, Dr. Jackson is free from the least responsibility; and this alike, whether he doubted the safety of the application of ether, or only, as it would seem, the competency of Dr. Morton to administer it safely. In either case, the risk was wholly confined to Dr. Morton, and the surgeons of this Hospital.§ Dr. Morton thus follows up his first suc-

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sibility to pain generally. Had the ether that I tried on the 5th August been pure I should have made the demonstration then. I further acknowledge, that I was subsequently indebted to Dr. Jackson for valuable information as to the kinds and preparations of ether, and for the recommendation of the highly rectified, from Burnett's, as the most safe and efficient. But my obligation to him hath this extent, no further."

In this memorial, we find also the following paragraph:—"I went to Dr. Jackson, therefore, to procure a gas bag, also with the intention of ascertaining something more accurately as to the different preparations of ether, if I should find I could do so without setting him upon the same track of experiment with myself. I am aware, that, by this admission, I may show myself not to have been possessed by the most disinterested spirit of philosophic enthusiasm, clear of all regard for personal rights or benefits; but it is enough for me to say, that I felt I had made sacrifices and run risks for this object; that I believed myself to be close upon it, yet where another, with better opportunities for experimenting, availing himself of my hints and labours, might take the prize from my grasp."

The Committee deem it a very important consideration, in respect to this interview, that the information in question was elicited by the visit of Dr. Morton to Dr. Jackson for a specific purpose, viz., to obtain the means of persuading a patient to submit to an operation, under the idea that it would be unattended with pain; and that it was not disclosed in an interview sought by Dr. Jackson to make trial of it for *his* satisfaction, or to accomplish *his* purposes.

* Dr. G. G. Hayden, however, in his affidavit, states that, "On the evening of 30th of Sept., after the first experiment had been made with success, Dr. Morton spoke about going to the Hospital, and using the ether there, and thus bringing out the new discovery;" while a witness of Dr. Jackson's testifies, that "Dr. Morton strongly objected at first to going to the Hospital." He certainly showed no such reluctance *at last.*

† Dr. Jackson was absent from the city when the third operation was performed at the Hospital, and remained absent twelve days; but, besides this expected absence, he had assigned another reason for declining to assist at that operation.

‡ More than one witness distinctly remembers, that the expression, "I don't care what he does with it, if he does not drag my name in with it," and others of similar import, were used by Dr. Jackson in relation to Dr. Morton's early experiments, in confirmation and establishment of this discovery. And one of Dr. Jackson's own witnesses, George O. Barnes, in an affidavit published in Dr. Gay's pamphlet, says expressly:—"In fact, he (Dr. Jackson) was sorry that he had communicated his discovery to Morton, and that he had employed him to make those early experiments with the ether. He spoke strongly upon those points."

§ These were then, as now, Drs. John C. Warren, George Hayward, Solomon D. Townsend, Henry J. Bigelow, Samuel Parkman, and J. Mason Warren. Dr. Gay argues that Dr. Morton *did* not, and from his ignorance *could* not, run any risk in following the directions originally given by Dr. Jackson. That argument is certainly inapplicable to these subsequent experiments.

cess; and the great truth is at last made manifest, for which so many a prayer had been breathed in vain ever since man had lived and suffered. *It is demonstrated that ether may be applied with safety, so as to produce insensibility during all surgical operations.*

"Upon the whole, then, it seems clear, that to Dr. Morton the world is indebted for this discovery; and that, but for Dr. Jackson's scientific knowledge and sound advice, Dr. Morton would not have made it at that precise time, and might have failed to do so at any time. The one, having a strong conviction of the safety of the agent, has the credit of giving the best possible advice: the other, by nature determined and fearless, makes the first actual application. Between the discoverer and his adviser, there will henceforth ever be an indissoluble, however reluctant, copartnership. In accordance with these general views are the published statements of two of our own officers. One of them, Dr. Hayward, says: 'It is understood, that Dr. C. T. Jackson, well known by his great attainments in geology and chemistry, first suggested the use of ether; but to Dr. Morton, I think, must be awarded the credit of being the first who demonstrated, by actual experiment on the human subject, the existence of this wonderful property.' The other, Dr. Jacob Bigelow, President of the American Academy of Arts and Sciences, in an article published in the Medical and Surgical Journal of July 7, 1847, says:—'In the case of Dr. Jackson, if he did make the discovery in 1842, as asserted, or even later, he stands accountable for the mass of human misery which he has permitted his fellow-creatures to undergo, from the time when he made his discovery, to the time when Dr. Morton made his. In charity, we prefer to believe, that up to the latter period, he had no definite notion of the real power of ether in surgery, having seen no case of its application in that science. The first made partial experiments, and recommended, but did not make, decisive ones. The last took the risk and labour necessary to demonstrate or disprove its efficacy, and, above all, the safety of the process, which, until his time, had been believed to be dangerous to life, on various good authorities, from Dr. Christison to Mr. Peabody.

"In view alike of the simplicity of the agent employed, the magnitude of the results attained, and the near approaches so repeatedly made to this discovery, how applicable are the lines of Milton, to which a friend has called the attention of the Committee!

> "'The invention all admired, and each how he
> To be the inventor missed, so easy it seemed
> Once found, which yet unfound most would have thought
> Impossible.'

"It is matter of regret that a noble discovery in science should have been attended with discussions and controversy, involving much bitterness, and, as it seems to us, disingenuousness. Dr. Morton distinctly admits, that his original application to Dr. Jackson was made with a studied concealment of his true object, and an assumed ignorance of the whole subject (as it would seem, even to the extent of asking if ether were a gas.*) The motive of this concealment is explained to have been a fear lest he should otherwise lose the honour of any eventual discovery which he might make. The consequences to Dr. Morton have been, however, that many, relying on the unimpeachable testimony of those present at that interview, have been induced to withhold from him all credit whatever, except that of 'a nurse who administers a new and bold prescription of a physician,'† and to regard him, throughout this discovery, in the false light of a mere agent of Dr. Jackson. This culpable step has seemed to increase the merit of Dr. Jackson's advice, by rendering it unsolicited information, instead of a mere answer to a direct inquiry. It has itself furnished the only colourable ground for depriving Dr. Morton of the honour of the discovery. Thus fitly has the majesty of truth vindicated itself! On the other hand, Dr. Jackson transmits to Europe, *as a paper which had been read before the American Academy*, a statement of his claims to this discovery; when, *in fact, it had not been so read;* thus communicating it to the world under an official sanction to which it was not as yet entitled. So also, in a communication in the Boston Daily Advertiser of March 1st, Dr. Jackson says he '*was desirous of testing it* (the ether) *in a capital operation;* and that *Dr. J. C. Warren politely consented to have the trial made;* and its results proved entirely satisfactory, an amputation having been performed under the influence of ethereal vapour, without giving any pain to the patient.' Whereas we have two distinct published statements of Dr. Warren, one in reply to a letter of November 30, 1846, in which occurs the following sentence:—' Two or three days after these occurrences, (*i. e., the first two operations at the Hospital,*) on meeting with Dr. Charles T. Jackson, distinguished for his philosophical spirit of inquiry, as well as for his geological and chemical science, this gentleman informed me, that he first suggested to Dr. Morton the inspiration of ether, as a means of preventing the pain of operations on the teeth. He did not claim the invention of the apparatus, or its practical application. For these we are indebted to Dr. Morton.' The other statement is as follows:—' Boston, January 6, 1847. I hereby declare and certify, to the best of my knowledge and recollection, that I never heard of the use of sulphuric ether by inhalation, as a means of preventing the pains of surgical operations, until it was suggested by *Dr. W. T. G. Morton*, in the latter part of October, 1846.' If it be said, that neither of the first two operations was a capital one, we have the authority of Dr. Hayward, who performed the second operation,* for saying, that it was the removal of a very large tumour from the arm, that it occupied seven minutes,—that, as it involved the painful process of cutting through the skin to a great extent, it was as entirely satisfactory as an amputation would have been,—the patient being free from all sense of pain. One present at the operation exhibited to the Committee a sketch of the arm and the tumour upon it, taken at the time, which clearly showed how formidable an operation it must have been, though not perhaps what would be professionally called a *severe* one. Dr. Warren says expressly in his yet unpublished work, 'The patient exhibited no sign of physical or intellectual suffering.' *And yet it was not until after this operation, that Dr. Warren or Dr. Hayward had received an intimation that Dr. Jackson had anything to do with the discovery, either from himself or any one else.* The third operation was a capital one, and it was entirely successful. Alice Mohan, a young woman of twenty years of age (who had long been a patient in our institution, and who is doubtless well remembered by all this Board, to whose kind consideration her character and conduct, no less than her misfortunes, so well entitled her), was to submit to amputation above the knee. But if Dr. Jackson's statement is to be understood as applying only to this case, we still find that every part of the statement is entirely irreconcilable with the facts. This operation was performed, not by Dr. Warren, but by Dr. Hayward. And not only was Dr. Hayward still entirely ignorant of Dr. Jackson's participation in this discovery; but the dialogue which actually had taken place between Dr. Warren and Dr. Jackson, in relation to it, was to this effect. Dr. Warren, on being informed by Dr. Jackson that he first suggested to Dr. Morton the use of sulphuric ether, *requested Dr. Jackson to come to the Hospital, and administer it* during this operation, which was to take place the next Saturday. *Dr. Jackson declined doing so*, for two reasons:—one, that he was going out of town; the other, that he could not do so, consistently with his arrangements with Dr. Morton. Dr. Warren has not given to the Committee any information respecting this conversation; but that such was the substance of the dialogue is capable of judicial proof from other evidence which has been laid before the Committee. So that, if Dr. Jackson at any time requested of Dr. Warren to have the ether administered during a capital operation at the Hospital, it must have been after this conversation, in which he declined to administer it, and after it had been successfully applied by another without his assistance.

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* That this degree of ignorance was assumed seems certain from the letter of Mr. Metcalf, page 498, which proves his acquaintance with sulphuric ether three months before. If, however, this ignorance of Dr. Morton were real, and not assumed, though it would detract from the credit awarded to him, it would not strengthen the claims of Dr. Jackson. He had a right to regard the assumed ignorance as genuine.

† This illustration, used by Dr. Gay, seems to the Committee entirely inapplicable. A nurse who refuses to administer even a new and bold prescription may be justly denounced by the attending physician; whereas Dr. Morton was not a student under Dr. Jackson's orders, and obliged to administer his remedies to one of *his* (Dr. Jackson's) patients. He was a free agent, who, after receiving the prescription, voluntarily went and sought out a patient who was willing to submit to it.

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* The first operation, the removal of a tumour from the neck, was performed by Dr. Warren, who says that it was a case of imperfect etherization. It was performed October 16, 1846. The second operation took place October 17th, and the third on November 6th.

"This withholding of all credit from Dr. Morton has but caused Dr. Jackson's own claims to be the more strictly scrutinized. Had he been willing to admit that the discovery was a joint one, the world would probably have allowed to him, as a truly scientific man, the largest share of the honors resulting from it. The exclusive claims of Dr. Jackson seem to rest wholly upon the hypothesis, that Dr. Morton was, from first to last, his mere agent;—an idea evidently repudiated by Dr. Morton, when he first went to Dr. Warren, *without even naming Dr. Jackson;* and most openly and unequivocally disavowed by Dr. Jackson himself, during the whole series of Dr. Morton's experiments. The Committee think that Dr. Jackson's own early acts have, indeed, forever rendered inadmissible these exclusive claims. He at first agreed to receive from Dr. Morton the sum of $500, as a compensation for his services. Is it, for one moment, conceivable that the true discoverer would have thus bartered away his birthright for a mess of pottage? And when subsequently, at the suggestion of the Commissioner of Patents, a personal intimate friend of Dr. Jackson, Dr. Morton consented to permit Dr. Jackson's name to be associated with his own in the patent,—he having agreed, instead of the $500, to receive one-tenth part only of the profits,—we ask again, is it conceivable that the sole discoverer would have thus associated another with himself,—taking even an oath that they were joint discoverers, and, at the same time, have consented to receive only a pittance of what was wholly his own? No! We consider that Dr. Jackson is estopped for ever from such a claim, and that not upon technical grounds, but by the whole equity of the case. We will not, however, further pursue this ungracious part of our subject.

"It is further matter of regret, that a patent should have been taken out for such a discovery. As well might Dr. Franklin have claimed one for the exclusive use of the electric fluid. A patent in this case, indeed, would seem to be a peculiarly odious monopoly,—a speculation based upon human suffering,—like an exclusive right to sell breadstuffs to a famishing community. It is due, however, to Dr. Morton to state that he tendered the free use of the discovery to this institution,* and requested from Dr. John C. Warren a list of all similar institutions in the country, that he might extend its benefits to them. He, in like manner, tendered the free use of it to the army and navy of the United States. His design was, as he alleges, to charge to practitioners a moderate annual sum, which, he thought, would be paid cheerfully, and without inconvenience, by their respective patients.† Dr. Jackson's name would not have been associated in the patent, but at the instigation of R. H. Eddy, Esq., the commissioner, who has publicly avowed that he acted under a mistaken apprehension of facts, and who now awards to Dr. Morton the sole honour of the discovery, which at the time he supposed might fairly be regarded as a joint one. Mr. Eddy's intelligence and truthfulness and his sincere friendship for Dr. Jackson, are well known in this community. But we must state our conviction, that it was a sad mistake to have resorted to any exclusive legal rights in the present instance. This has become the deliberate opinion of the profession and of the public. One of the patentees, Dr. Jackson, after applying to be admitted to a larger share of the profits, ultimately renounced all claims to any benefit from this source; and the patent has also become unavailable to Dr. Morton.‡ We cannot, however, but wish, that it had been originally taken out rather from the hope of securing to themselves the honour than the profits of the discovery. And yet a national benefit of such magnitude is well entitled to a national reward. It may be true that Dr. Jackson does not need or now wish such reward; but it is a mortifying fact, that Dr. Morton's pecuniary affairs have become embarrassed, in consequence of the interruption of his regular business, resulting from his efforts and experiments in establishing this great truth, and that his health has also seriously suffered from the same cause, so that he can devote only a small part of each day to his professional labours. He has become poor in a cause which has made the world his debtor.* The Committee

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* He certainly made the offer, without any previous request from this board; though a witness of Dr. Jackson's states, that it was made at his suggestion, and with a reluctant acquiescence on the part of Dr. Morton.

† In his licenses was inserted a clause, that such payments were to cease, if the United States, or the state where the practitioner lived, should purchase the right to use the discovery.

‡ The two gentlemen who acted as legal advisers of Dr. Jackson addressed a letter to Messrs. R. H. Eddy and W. T. G. Morton, dated Boston, January 28, 1847, containing the two following sentences:—"Under the present circumstances of the case,

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we think the least that, in justice to yourselves and Dr. Jackson, you can offer is twenty-five per cent. of the profits arising from the invention, both at home and abroad, in settlement of his claim upon you." . . .

"It is our wish to settle the matter amicably, if possible. We hope you will see, by our suggestions, that we wish only to have a fair distribution of the profits of a discovery made among those who cannot, if they disagree, effectually sustain the patent; and which, if sustained, *promises to give to all parties large sums of money for their united co-operation*."—Dr. Gay, however, says that Dr. Jackson "deemed it a sort of impropriety to procure letters patent for the practical application of scientific discoveries. He himself never would have procured one, merely for his own pecuniary benefit, in a case so important to the interests of humanity."

In the memorial before referred to, as presented by Dr. Morton to the French Academy, the closing sentence is as follows:—"But, as the use has become general and almost necessary, I have long since abandoned the sale of rights (under the patent), and the public use the ether freely; and, I believe, I am the only person in the world to whom this discovery has, so far, been a pecuniary loss."

* The Committee have the highest medical authority (that of Dr. Homans) for saying, that, from living so much of late in an atmosphere of ether, from the anxiety attending the various trials and experiments connected with the discovery, and from the excitement caused by the controversies which it has occasioned, the health of Dr. Morton has become such "that he is unable to attend to his professional duties to any extent." We have equally high authority from several members of the legal profession, and others, for our statement respecting Dr. Morton's circumstances. And, in this view, we subjoin extracts from a letter of Benj. F. Brooks, Esq., counsellor-at-law, the concluding sentence of which, honourable as it is to the writer, has the sincere approval of the Committee; also the confirmatory letters of Mr. Dana and of Mr. Burnett, the apothecary who supplies all the medicines used in this institution, and at whose shop the ether was purchased by which the discovery was made.

Mr. Brooks' Letter.

"*Boston*, 27 *State Street*, *Jan.* 14, 1848.

"N. I. Bowditch, Esq.—Dear Sir—It gives me pleasure to be able to communicate, in answer to your inquiry, the information I have relative to the pecuniary embarrassments under which Dr. W. T. G. Morton labours. I was employed, last summer, to collect a debt of him, and was thereby led into an examination of his affairs, the result of which was, that I found that he had no means of paying his debts, or supporting himself and family, except the proceeds of his professional labours. *The debt which I was engaged in collecting was contracted in carrying out his plans in respect to his discovery; and that, with several other debts contracted in the same way, were pressed upon him for payment.* Suits were commenced, and a large number of his patients trusteed, which, together with the neglect which his business had suffered while he was employed about his discovery, materially diminished the extent of his practice. I am satisfied that Dr. Morton then made every effort, which could reasonably be required of him, to pay his debts, but could not. They are mostly still outstanding against him; and, with his present impaired state of health, the proceeds of his labours, although devoted to this purpose,—as heretofore, I believe, faithfully done,—will be so far diminished that he will not be able to meet his debts for a long time to come, if at all; while he is, and will be, continually subject to annoyances and trouble on account of them. . . . . I have gone somewhat into detail, that you may see the nature of Dr. Morton's embarrassments. *They have grown out of his efforts in a cause which has resulted in a great public good, and he deserves a better fate than to be left to sink under them.*—Yours truly,

"BENJ. F. BROOKS."

are, in this connection, authorized to state, that a memorial was prepared by the physicians and surgeons of this institution, to be forwarded to Congress at its present session, and had been already signed by eleven of them (all except Dr. J. B. S. Jackson), when further proceedings were stopped by a remonstrance from Dr. C. T. Jackson. This memorial, as embodying the views of these officers, is placed at the disposal of your Committee; and we cannot better close this discussion than by subjoining the following copy of the document referred to:—

"*To the Senate and House of Representatives of the United States of America in Congress assembled.*

"The undersigned, Physicians and Surgeons of the Massachusetts General Hospital, beg leave to represent,—

"That, in the year 1846, a discovery was made in the city of Boston, by which the human body is rendered insensible to pain, during surgical operations, and during other serious and violent affections, by means of the vapour of ether inhaled into the lungs.

"That a patent for this discovery was taken out by two citizens of Boston, by whom the first satisfactory experiments on the prevention of pain by this means had been made; and the first capital operations, conducted under the influence of this agent, were performed in the Massachusetts General Hospital, by the surgeons of that institution.

"That the success of this method of preventing pain has been abundantly and

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Mr. Burnett's Letter.

"*Boston, Jan.* 8, 1848.

"N. I. Bowditch, Esq.—Dear Sir—In reply to your request to communicate such knowledge as I may have respecting the present pecuniary and personal condition of Dr. W. T. G. Morton, I would state, that my acquaintance with him commenced in 1842, and has continued, by almost daily business intercourse, until the present time. By his own industry and perseverance, while under peculiar and perplexing difficulties, he increased his business largely from year to year, until about the close of the year 1846; when, owing to his exertions to introduce and extend the use of ether as an anæsthetic agent, his regular business was neglected, and, of course, very much injured. During the whole of this time, I have had considerable knowledge of his pecuniary affairs, and am satisfied that he has been a loser of several thousand dollars, directly or indirectly, in consequence of his labours devoted to this object. To the same cause (so far as it may be proper for an unprofessional man to express an opinion) I have attributed the present suffering condition of his health. In all my business relations with Dr. Morton, I have never had occasion to doubt the integrity of his intentions.—Very respectfully, your obedient servant,

"Joseph Burnett."

Mr. Dana's Letter.

"30, *Court Street, Jan.* 14, 1848.

"My dear Sir,—In answer to your further inquiries, I reply that you are right in supposing that my situation, as legal adviser to Dr. Morton, has enabled me to know the state of his pecuniary affairs. He is now very much embarrassed, and has not the means of making even a satisfactory compromise with his creditors, in the way of present payment; yet, if his health does not fail him, he hopes to be able to pay all his debts in the course of two or three years—provided, of course, that his creditors will give him time and opportunity. I have recently made an examination of his affairs, in order to furnish a statement to his creditors, and am satisfied that his present indebtment arises out of the unavoidable neglect of his dental business for some months after the announcement of the ether discovery, and the difficulty of reestablishing it in his present circumstances, added to the direct pecuniary losses he sustained in attempting to introduce the use of the ether under his patent right. I have read the letters of Mr. Burnett and Mr. Brooks, and can say that nearly all the facts stated by them are also within my knowledge, and that I agree with them in opinion as to the present state of Dr. Morton's health, business and pecuniary affairs, and the causes which have produced it.—Truly your friend and servant,

"Richd. H. Dana, Jun.

"To N. I. Bowditch, Esq."

completely established by a hundred and fifteen operations performed in said hospital during the last year, and by a still greater number out of it in the city of Boston.

"And, in all cases within the knowledge of the undersigned, it has greatly mitigated, or wholly prevented, the pain, when skilfully administered, and in no case has any fatal or disastrous consequence followed its use, within their observation; and although inconveniences and temporary disturbances of the nervous system have sometimes followed its application, yet these are exceptions to a general rule, and are not more common than those which result from the employment of other powerful medicinal agents, and are incomparably less distressing than the evils they are employed to obviate.

"The undersigned have reason to believe, that, since the introduction of this process, some thousands of persons have inhaled ether in Boston and its vicinity, with impunity and benefit; that its value is already recognized, and its employment introduced into most parts of Europe; that the use of the process ought to be, and, by judicious arrangements, probably will be, extended into all parts of the United States; and that no discovery in medical science, during the present century, has relieved as much suffering, and conferred so great a benefit on humanity, as the discovery of the power and application of ether.

"The undersigned are aware, that the power of ether to produce insensibility, and even death, when improperly used, was known in Europe many years ago. They are also aware, that other aeriform bodies have been experimented on, and the vapour of ether itself unsuccessfully tried, by other individuals, in surgical operations; but they are satisfied, that the safety of the process, and the effectual mode of applying it, were first made known in Boston, in 1846.

"Understanding that the use of this important discovery is now restricted by letters patent granted from the office of the secretary of state, and believing that it is the policy of wise governments to diffuse among their constituents the blessings of such discoveries as tend to alleviate human suffering, and at the same time to reward those who have conferred such benefits upon the world,—the undersigned respectfully pray, that such sums as shall be thought adequate may be paid by the Government of the United States to those persons who shall be found, on investigation, to merit compensation for the benefit conferred on the public by this discovery, and on condition of the relinquishment by them of any patent right they may hold restricting its use.

("Signed) JOHN C. WARREN,
"JACOB BIGELOW,
"GEO. HAYWARD,
"ENOCH HALE,
"S. D. TOWNSEND,
"JOHN D. FISHER,
H. I. BOWDITCH,
O. W. HOLMES,
J. MASON WARREN,
SAMUEL PARKMAN,
HENRY J. BIGELOW.

"*Boston, Nov.* 20, 1847."

"As a general summary of facts and views, the Committee report that, in their judgment, the following propositions are satisfactorily established:—

"Down to September 30, 1846, Dr. Jackson had discovered nothing that had not been known and in print in London for some years. It was known that ether would produce insensibility; that such insensibility, though sometimes fatal, was sometimes safe; and that one of the properties of ether was its power to obviate the ill effects of an inhalation of chlorine gas. The discovery of the safety and efficacy of the inhalation of ether in surgical operations had not yet been made; the only experiments which Dr. Jackson had tried, or caused to be tried, being those already prescribed by the text books. Dr. Jackson had for some time entertained a strong impression that it could be used with safety and effect during the operations of the dentist,—a conjecture which a hundred other persons may have made without discovering the fact; and incidentally, on more than one occasion, he had advised its use for that class of operations, but had been unable to persuade any one to use it, not even persons of science and intelligence, who were most familiar with all that Dr. Jackson knew or thought upon this subject.

"Prior to this time, Dr. Wells had used the nitrous oxide for this object, as recommended many years before by Sir H. Davy. His experiments performed in

Boston were, however, unsuccessful. He also claims to have performed one experiment with sulphuric ether, which, from the circumstances, must also necessarily be inferred to have been unsuccessful. And there is positive evidence that the most eminent physicians of Boston never heard of the latter experiment till after Dr. Morton's discovery.

"Dr. Morton had for some time been engaged in searching for a safe agent for promoting insensibility, during dental operations. He knew of, and had, upon one occasion, taken part in, the nitrous oxide experiments of Dr. Wells.

"As early as July, 1846, he purchased sulphuric ether, and proceeded to experiment upon it. On September 30, 1846, he has an interview with Dr. Jackson, and receives his decided advice to use pure rectified sulphuric ether during a dental operation, accompanied with the strongest assurances of its safety, and with the information where it could be obtained. Dr. Morton, unlike others who had received this advice, and notwithstanding he knew the prevailing belief of the dangerous and sometimes fatal character of this agent,* forthwith acted upon it. That he proceeded to inhale it himself, rests, indeed, on his own assertion. The Committee have no doubt of its truth. He certainly administered it to a patient. *By so doing, he made this discovery.*† On learning this result, Dr. Jackson very naturally suggested to Dr. Morton that he had better get the ether tried by the surgeons of the Hospital, which a witness of Dr. Morton's, however, alleges that he had previously determined to do. But all the subsequent steps were taken by Dr. Morton himself, without the slightest sympathy or co-operation on the part of Dr. Jackson, who, from alleged fear of his recklessness, withheld from him all countenance and encouragement. In view of these facts, the Committee are of opinion that the *exclusive* claims advanced by Dr. Jackson,* though now very extensively recognized in foreign countries, are unfounded, being unwarranted alike by his acts and by his omissions; and that they involve great injustice towards Dr. Morton;—that their names will be for ever jointly, though not equally, associated in this discovery; Dr. Jackson being entitled to the credit of having rendered readily available the existing knowledge upon the subject of ether, which Dr. Morton was really, though not avowedly, seeking to obtain: and Dr. Morton having first demonstrated its safety and efficacy in the prevention of pain during surgical operations;—and that Dr. Morton, by consenting to permit Dr. Jackson's name to be united with his in the patent, with the right to receive *one-tenth* part of its profits, has shown himself disposed, fairly and honorably, to recognize the amount of his indebtedness to Dr. Jackson's advice.

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* See Mr. Metcalf's letter, p. 498.

† Indeed, it seems to be distinctly admitted by the advocate of *Dr. Jackson*, that *he* had made no discovery in this case prior to Sept. 30, 1846. Dr. Gay says expressly, in commenting upon Dr. Wells' claims,—"Although so much time (two and a half years) has elapsed since Mr. Wells' experiments, he presents no evidence of its adoption into general surgical practice, even in that flourishing city. *It required little more than the same number of months to diffuse the knowledge and application of Dr. Jackson's discovery throughout the civilized world.*"

In fact, the specification accompanying the patent, and signed both by Dr. Jackson and Dr. Morton, and bearing date Oct. 27, 1846, is most distinct in the same admission. We subjoin the following extracts, in proof of this position, and also of the fact that Dr. Jackson did not regard *sulphuric ether* as the *sole* agent which might be used to produce insensibility to pain:—

"It is well known to chemists, that, when alcohol is submitted to distillation with certain acids, peculiar compounds, termed *ethers*, are formed; each of which is usually distinguished by the name of the acid employed in its preparation. It has also been known, that the *vapours of some, if not all,* of these chemical distillations, *particularly those of sulphuric ether*, when breathed or introduced into the lungs of an animal, have produced a peculiar effect on its nervous system, one of which has been supposed to be analogous to what is usually termed intoxication."

"It has never (to our knowledge) been known, *until our discovery*, that the inhalation of such vapours, *particularly those of sulphuric ether*, would produce insensibility to pain, or such a state of quiet nervous action as to render a person or animal incapable, to a great extent, if not entirely, of experiencing pain while under the action of the knife, or other instrument of operation of a surgeon, calculated to produce pain."

"*This is our discovery,*" &c.

"From the experiments we have made, *we are led to prefer the vapours of sulphuric ether to those of muriatic or other kinds of ether;* but any such may be employed *which will properly produce the state of insensibility, without any injurious consequences to the patient.*"

The testimony of Dr. Keep and of Mr. Barnes, in p. 21, as to Dr. Morton's not being aware of the importance of the admission of atmospheric air, having been commented upon by the Committee, it is proper here to add the fact, that in this very specification occurs the following sentence in the description of the apparatus to be employed:—"*Let there be a hole made through the side of the vessel, for the admission of atmospheric air,*" &c. And the original apparatus first used at the Hospital by Dr. Morton is, as the Committee are informed, expressly constructed so as to admit atmospheric air. Besides, had no atmospheric air been admitted, his patients would probably have been killed, discredit thrown upon the process, and the discovery perhaps postponed for ages.

It may also be remarked, that, in view of this disclaimer, by Dr. Jackson, of any discovery prior to Sept. 30, 1846, it seems difficult to explain an expression which is quoted by Mr. Warren, in his pamphlet, as extracted from Dr. Jackson's letter to M.

"The essential conclusions in the case may be thus concisely stated:—

"1st. *Dr. Jackson does not appear at any time to have made any discovery, in regard to ether, which was not in print in Great Britain some years before.*

"2d. *Dr. Morton, in* 1846, *discovered the facts before unknown, that ether would prevent the pain of surgical operations; and that it might be given in sufficient quantity to effect this purpose, without danger to life. He first established these facts by numerous operations on teeth, and afterwards induced the surgeons of the Hospital to demonstrate its general applicability and importance in capital operations.*

"3d. *Dr. Jackson appears to have had the belief, that a power in ether to prevent pain in dental operations would be discovered. He advised various persons to attempt the discovery. But neither they nor he took any measures to that end; and the world remained in entire ignorance of both the power and safety of ether, until Dr. Morton made his experiments.*

"4th. *The whole agency of Dr. Jackson in the matter appears to consist only in his having made certain suggestions, which led or aided Dr. Morton to make the discovery,—a discovery which had for some time been the object of his labours and researches.*†

Elie de Beaumont, originally published in "Galignani's Messenger," Jan. 25, 1847; namely,—"I have *latterly* turned this discovery to use, by inducing a dentist of this city to administer the vapour of ether to persons whose teeth he was going to extract."

* That such claims are really advanced by Dr. Jackson, is well known. He said, indeed, to one of the Committee, "I allow of no partnership in this matter. If your report takes from me such a proportion of the sole credit of this discovery, *as amounts even to the paring of a finger nail,* I shall entirely object to it."

† The results otherwise arrived at by the Committee have received the highest confirmation from Professor Simpson, the discoverer of chloroform, who has transmitted to Dr. Morton a copy of his pamphlet, entitled, "Account of a New Anæsthetic Agent, as a substitute for Sulphuric Ether, in Surgery and Midwifery," with the following note written upon one of its blank pages:—

"My dear Sir—I have much pleasure in offering, for your kind acceptance, the accompanying pamphlet. Since it was published, we have had various other operations performed here, equally successful. I have a note from Mr. Liston, telling me also of its perfect success in London. Its rapidity and depth are amazing.

"*In the Monthly Journal of Medical Sciences for September, I have a long article on etherization, vindicating your claims over those of Jackson.*

"*Of course, the great thought is that of producing insensibility; and for that the world is, I think, indebted to you.*

"I read a paper lately to our Society, showing that it was recommended by Pliny &c., in old times.

"With very great esteem for you, allow me to subscribe myself,

"Yours very faithfully, J. Y. Simpson.

"Edinburgh, 19th Nov. 1847."

"The Committee are well aware, that any investigation and opinion which shall have the sanction of this Board—emanating, as all must admit, from those who ought to know most of the circumstances of this discovery—will be entitled to great weight. That investigation has been conducted by the Committee under a solemn sense of responsibility to the public, to posterity, and to the cause of truth and justice. Personal feelings have been laid aside. When this inquiry was instituted, neither of the Committee had ever seen Dr. Morton; and both of them, on the other hand, were in friendly relations with Dr. Jackson. There had always existed between them and him feelings of mutual respect and regard. No friend of Dr. Jackson would willingly remove a merited laurel from the brows of one whose scientific attainments, upright intentions, and amiable character, all are happy to acknowledge. The Committee, indeed, believe that he is honestly self-deceived in this matter.

"We submit our Report upon this subject to the Board, in the assurance that it will receive their deliberate examination, and that its conclusions will be adopted, if at all, under a like solemn sense of responsibility.[*]

Accordingly, in a note published with the article referred to, is the following sentence:—"Within the last few days, I have seen a pamphlet, dated Boston, May 30, 1847, in which it is stated, that, for three months previously, all apparatus had been laid aside, and the sponge alone used for etherization, by Dr. Morton of that city,—the gentleman to whom, I believe, the profession and mankind are really and truly indebted for first reducing into practice the production of insensibility by ether inhalation, with the object of annihilating pain in surgical operations."

[*] A few remarks upon the manner in which this inquiry has been pursued, may not, perhaps, be inappropriate.

The Committee considered, that, as Dr. Morton alone assisted in the early experiments at the Hospital, they were not strictly called upon to mention Dr. Jackson, but, inasmuch as Dr. Gay's pamphlet had been for some time before the world, and also Mr. Warren's reply, it seemed that the whole subject had been submitted by the parties to the tribunal of the public, and that the public would reasonably expect from this institution such a narrative of the facts as might be prepared from these *and from other sources more especially within our reach.* Both these pamphlets were, therefore, very carefully examined and compared; twenty-two individuals, most conversant with the subject, consulted; and the report substantially prepared. The Committee then deemed it advisable to address a note to Dr. Jackson, informing him that Dr. Gay's pamphlet had been considered by them as containing a full statement of his claims; that if, however, he had any additional facts to communicate, the Committee would be happy to receive them. The result was two personal interviews, besides one of three hours' duration (by express appointment) with Dr. Gay in behalf of Dr. Jackson. Dr. Gay offered to prove certain facts, having no connection with or relation to this discovery, which the Committee declined hearing. He also said he had other evidence of a strictly confidential character, which was also declined. He then proceeded to comment upon the testimony contained in Mr. Warren's pamphlet. All his arguments and objections upon this point have been fairly stated by the Committee from memoranda taken at the time; and the deliberate views of the Committee, in relation to these objections, have been also stated. The Committee, at this interview, wished to know the worst that could be suggested as to the credibility of these witnesses. Few remarks were, therefore, made to Dr. Gay, as to the sufficiency of his objections, but they were noted as subjects for future investigation. The Committee may have said, "Well, putting this deposition aside for this ground, what is your objection to the next deposition?" But it was, on the other hand, distinctly suggested to Dr. Gay, that two of these witnesses were very favourably spoken of, and that the testimony of Whitman, whose character even Dr. Gay admitted to have been above suspicion, was obviously confirmatory of matters stated by the two witnesses referred to; and that even Whitman's testimony alone was sufficient to prove that Dr. Morton was striving to realize the idea of this discovery, and was, therefore, irreconcilable with Dr. Jackson's *exclusive* claims.

ART. XIX.—*A Descriptive Catalogue of the Anatomical Museum of the Boston Society for Medical Improvement.* By J. B. S. JACKSON, M. D., Curator of the Museum, Prof. Path. Anat. in Harvard University. pp. xii–352. 8vo. Boston: William D. Ticknor and Co., 1847.

THE Boston Society for Medical Improvement has been in existence since 1828, and honourably maintains the name it bears by the zeal, industry, and liberality of its members. From the introduction to the catalogue, we learn that its meetings are held twice a month, and are rendered interesting by the reading of an original paper, by one of its members in turn, and by the report of cases, &c., which are regularly recorded, the fatal cases being frequently accompanied by the diseased parts themselves. A selection from these morbid specimens—those which illustrate unusual forms of disease having the preference—forms the basis of the cabinet under consideration, of which the "peculiar and principal interest is due to the connection of the specimens, in most instances, with authentic histories of the cases from which they were derived."

In addition to these, however, "important specimens have been obtained from other sources," among which is a valuable "collection of Chinese paintings, presented by Dr. Robert W. Hooper, with the nearly complete history of the cases," a "suite of casts presented by Prof. Nathan R. Smith, of Baltimore," at the suggestion of his colleague Dr. Roby, who was formerly an active member of this society, and a large collection of gunshot and other injuries of the bones, with their histories, from Dr. S. D. Townsend, obtained from the United States Marine Hospital, at Chelsea, during the war of 1812, and others from Dr. Charles H. Stedman, for some years physician of the same hospital. "Some fine specimens of diseased bones, and several very beautiful anatomical preparations and models of disease," obtained in Paris, have been presented by Dr. George C. Shattuck, Jr. to the society, and a foundation for a library has been laid by a liberal donation to the society of the library and instruments of the late Dr. George B. Doane, one of its earliest and most respected members.

The Committee mentioned to Dr. Jackson, that they had obtained some new testimony in favour of Dr. Morton (meaning the letters of Mr. Metcalf and of Dr. Dana); but believing that the testimony in these letters was of a nature not to be rebutted, the Committee did not feel called upon to state the fact, that either of these two gentlemen had been consulted. The Committee felt themselves perfectly free, like every one else, to form and to express an opinion upon a matter of universal interest and importance, and which, indeed, seemed to fall naturally within their peculiar province, *even though they had not the previous permission of Dr. Jackson.* Their report had been unanimously accepted by the Trustees, and presented to and unanimously accepted by the Corporation. While it was in process of publication, a note was received from Dr. Gay, alleging that he supposed his objections to the testimony in Mr. Warren's pamphlet were recognized by the Committee as well founded, and protesting against the course pursued by the Trustees of the Massachusetts General Hospital in giving "any countenance to the attempt of Mr. Morton to rob Dr. Jackson of his sacred right to his own discovery." Dr. Gay, in his note, significantly adds, that "Dr. Jackson has always, excepting in one unguarded moment, declined submitting his claims to any tribunal, either to be agreed upon by the parties, *or self-constituted and forced upon him.*" He alleges that Dr. Jackson has much new evidence, that the investigation of the Committee must necessarily have been partial. This note of Dr. Gay was laid before the Trustees, at a meeting held Feb. 6; but they deemed no action necessary thereupon. The Committee claim no judicial powers or functions. Dr. Jackson is perfectly free to continue in his present determination of never submitting his exclusive claims to any human tribunal, or he may hereafter submit them to one which he shall regard as more competent or impartial. If, by any new evidence, he can establish these claims, he is still at liberty so to do. The Committee can only state, that they have endeavoured to prosecute their inquiries in a fair, cautious, and thorough manner, and that they feel the utmost confidence in the soundness of the conclusion at which they have arrived; and, conscious that no proceeding or neglect on their part has justified the remarks of Dr. Gay, they here take leave of this subject *for ever.*

In enumerating the sources from which this cabinet has been derived, we consider it an act of justice to direct attention to the untiring zeal and signal ability with which Dr. Jackson, the author of this catalogue, has laboured in behalf of the society. Those who are familiar with its history, well know that he may justly be regarded as the parent of the Society for Medical Improvement, not only as prime mover at its organization, but also in the fostering care which he has up to the present moment bestowed upon it. Without him, the society might, and probably would, have prospered among the enterprising and intelligent members of the profession in Boston; but with him its success was assured, and we find that "the general prospects of the society were never better than at present," it giving evidence of its continued devotion to the cause of medical improvement by thus placing within the reach of the profession everywhere, some of the positive results of its labours.

We can only indicate generally what is the character of the catalogue, and bear our testimony as to its usefulness, without attempting to enter into a detail of its contents. The whole number of the specimens—the written catalogue of which is more detailed than the present publication—is 954, classed in the work before us under fifteen distinct heads and an appendix of articles omitted or which have been presented since the catalogue was made out. These heads are—I. Healthy bones, in all 76 specimens. II. Diseased bones; 227. III. Soft parts about the bones; 15. IV. Heart and blood-vessels; 62. V. Organs of sense; 41. VI. Vocal and respiratory organs; 28. VII. Alimentary canal; 84. VIII. Organs accessary to the alimentary canal; 51. IX. Urinary organs; 64. X. Female organs of generation; 37. XI. Male organs of generation; 23. XII. Utero-gestation; 48. XIII. Monstrosities; 123. XIV. Parasites; 33. XV. Miscellaneous specimens; 24. Appendix; 18.

We feel that this is a very imperfect and unsatisfactory account of a truly valuable work, from which large extracts might very usefully occupy the pages of this journal, and we must, therefore, refer the reader to the work itself, which will amply reward him for the time spent in its perusal. C. R. K.

Art. XX.—*Elements of the Principles and Practice of Midwifery.* By David H. Tucker, M. D., Professor of the Principles and Practice of Medicine, and formerly of Obstetrics, and the Diseases of Women and Children, in the Franklin Medical College of Philadelphia: with numerous illustrations. 12mo., pp. 405. Philadelphia: Lindsay & Blakiston.

This forms the first of a series of manuals on the various practical branches of medicine, to be published under the general title of "The Medical Practitioner's and Student's Library." In the preparation of these manuals, the publishers have enlisted the talents of gentlemen, competent to render them a correct and valuable summary of the existing state of the several departments of our science. Receiving the volume before us as an earnest of the manner in which the elementary works, constituting the contemplated series, are to be executed, we are convinced that they will be found a useful addition to the student and young physicians' libraries.

The treatise of Dr. Tucker is confessedly a compilation from the works of the standard writers on obstetrics. In the execution of this compilation, the author has exhibited considerable judgment, and by the skilful arrangement and weaving together of his materials, has given to the work all the oneness and completeness of an original treatise.

The student will find in it a very plain and accurate, though concise description of the anatomy of the female pelvis, and organs of generation. A general view of the subject of generation, with an exposition of the leading opinions as to the mode in which it is effected; together with the history of the ovum, and the anatomy of the fœtus. The subject of pregnancy or utero-gestation, is very ably treated. The directions for the management of cases of ordinary labours, are pointed and judicious. The chapter on turning or version, is a very excellent one.

The cases in which it is demanded are accurately stated, and the directions for the proper mode of effecting it clearly laid down.

The directions for the application of the forceps, though in general correct, are not given with all the clearness which marks the author's description of the other obstetric operations. It is extremely difficult, we admit, by mere description, even with the assistance of the best executed diagrams, to teach the application of the forceps; we fear, however, that the author, by aiming at conciseness, has caused this portion of the work to be somewhat less clear and explicit than will suit the class of readers for whose especial benefit the work before us is mainly intended.

The wood-cut illustrations are numerous and well executed, while the mechanical execution of the whole work is deserving of praise. D. F. C.

ART. XXI.—*On the Theory and Practice of Midwifery.* By FLEETWOOD CHURCHILL, M. D., M. R. I. A., &c. &c.: with Notes and Additions, by ROBERT M. HUSTON, M. D., &c. &c. Third American Edition, revised and improved by the author; with one hundred and twenty-eight illustrations from drawings, by Bagg, and others, engraved by Gilbert. 8vo. pp. 525. Philadelphia: Lea and Blanchard.

THE work of Dr. Churchill is well known to the medical profession; and its merits are so fully recognized that it will be unnecessary for us, in our notice of this new edition, to do more than to state the fact of its having received from the author such additions as the progress of obstetrics have rendered necessary. In all respects, it will be found a faithful exponent of the present condition of the science. On the subject of the inhalation of ether, Dr. Churchill presents the favourable conclusions drawn by M. Dubois, from the experience of those who have the most extensively employed it, and the several objections that have been urged against its use, which, however, appear to him to be of little weight. He remarks, "I have, myself, after careful investigation and much consideration, determined to administer the ether in any obstetric operation to which I may be called, as a matter of duty. As to ordinary cases, I shall not refuse it if the patient wish for it; but as I do not see the same necessity for it, nor an equal advantage to be derived from it, I shall not necessarily urge its use."

We know of no work on Midwifery which can be consulted with more profit by the student or practitioner, than the one before us. There is scarcely a question connected with the theory or practice of the science, upon which it does not present a full exposition of the present state of our knowledge, and the experience of the most authoritative obstetricians. D. F. C.

ART. XXII.—*Researches on the Chemistry of Food.* By JUSTUS LIEBIG, M. D., Professor of Chemistry in the University of Giessen. Edited from the Manuscript of the Author, by WILLIAM GREGORY, M. D., Professor of Chemistry in the University of Edinburgh. London: 1847. 8vo. pp. 156.

THIS, the latest production of Professor Liebig, comprises his interesting and valuable researches into the nature of the soluble constituents of muscle or flesh. There is an excellent introductory section on the true method of research in animal chemistry, well-worthy of attention.

The little true progress of late years in physiological chemistry, is due, Prof. Liebig believes, to the wrong direction given to recent investigations in this most important and, at the same time, difficult department of science. Few or no professional chemists have selected it as the object of profound and thorough investigation. The important researches which Berzelius began forty years ago, as well as those of L. Gmelin, Braconnot, and Chevreul, have not been imitated or followed up in the same spirit which animated these men. No one has yet chosen some important question of the science as the problem of his life. It is as yet a frontier district into which too many adventurers have roamed. From the neglect of physiology and pathology by the chemist, of chemistry, by the physiologist and pathologist—from the want of connection between the labours of chemists and those of pathologists, "it has happened, that animal chemistry, during the last ten years, has gained little more than a more accurate knowledge of those compounds which the animal organism applies to no further purpose in its economy; and that, at the present time, it seems as if all the wonderful properties which it exhibits were produced only by means of albumen, fibrine, gelatine, some cerebral or nervous matter, and a little bile. It is universally felt, that we are as far from a true animal chemistry, as the anatomy of the last century was from the physiology of the present day. * * * * The chemical relations which must correspond to the different structures and tissues are altogether unexamined; and yet we cannot suppose otherwise than that the nature of each secretion must stand in a definite relation of dependence, in reference to its composition and its chemical properties, with those of the substance from which it is formed, or with those of the parts which are concerned in its formation."—(p. 5—6.)

These are convincing reasons to show that, henceforth, it is indispensable that anatomy, physiology. and chemistry, should unite their forces with a view to the solution ot the great questions which it is the common object of these sciences to investigate.

Another retarding error pointed out, is the undue importance attached to ultimate analysis. It has been regarded as the last and highest object of chemical investigation. When, ten years since, the ultimate analysis of organic bodies demonstrated the identity of composition in fibrine, albumen, and caseine, it was thought that the chief problem to be solved by chemistry was to ascertain, by ultimate analysis, the composition in 100 parts, of all the constituents of the body. Whilst it was believed, by means of these numerical results, a positive service had been done to physiology, the only real addition made was an empty formula, of the accuracy of which there was no evidence whatever. "Now," says Dr. Liebig, "that we have been for ten years in possession of these formulæ, every one must perceive that we have made no real progress. The cause of this is obvious to all who know the true value of ultimate analysis. Ultimate analysis is a means of acquiring knowledge, but is not itself that knowledge."—(p. 11.) It is not in itself sufficient; it must be accompanied by the study of the products of decomposition.

There is much that is true in all this, with some exaggeration,—as where the author, for example, asserts that we know as much of the chemical constitution of the blood constituents as we did forty years ago. He forgets, too, that he has himself contributed in no slight degree towards the very system of whose faultiness and unproductiveness he now so loudly complains. This introductory section is disfigured also by the unnecessarily harsh and unscientific manner in which the great rival of the author, Mulder, is treated in regard to the proteine controversy.

The chemical researches contained in the present work are both highly interesting and valuable to the physiologist and practical physician. They are additional proofs of the strictly chemical changes involved in the processes of the organism. The editor, Dr. Gregory, observes—"The medical man will find in these researches a prospect of many and great improvements in practice, whether as regards dietetics, or the action of acids, alkalies, and salts on the digestive and respiratory processes; and with respect to both, it is to chemistry that he must look for assistance in his efforts to advance Lastly, the present work contains some most valuable practical applications of the chemical discoveries therein detailed, to an art which immediately concerns the whole of mankind; namely, the culinary art."—(Preface, p. x.)

Section II. is on the *Constituents of the Juices of Flesh.* In 1835, Chevreul described, as an ingredient of the liquid obtained by boiling flesh with water, a new substance, under the name of *kreatine* (from κϱεας, flesh), which was distinguished by its properties from all known compounds. Berzelius, after the discovery of Chevreul became known, tried in vain to prepare this substance from raw-beef, and he therefore believed that it was an accidental ingredient, whose presence depended on peculiar circumstances in the feeding of the cattle. Wöhler subsequently obtained it from the soup of beef, and Schlossberger found it in the flesh of the alligator. After many fruitless attempts Liebig succeeded in obtaining kreatine. Dr. Gregory remarks "that the apparent simplicity of the results, and even of the processes described, gives a very inadequate idea of the laborious and difficult nature of the investigation. Having myself repeated several of these processes, I have been enabled to perceive, that, unless Baron Liebig had devoted to the subject his whole energies for a long time, and unless, moreover, he had operated on a scale so large as few experimenters would have ventured on, the whole subject would have remained as obscure as ever."—(Preface, p. xi.)

On subjecting the finely minced meat of newly killed animals to the action of water, a red or reddish coloured fluid is obtained, having the peculiar taste of blood. When heated in a water bath the albumen is first coagulated; and, finally, at a considerably higher temperature—in fact, actual ebullition—the colouring matter. The filtered liquid is acid. Its colour varies with the kind of flesh, being reddish in one, and hardly coloured in another. By evaporation it becomes brown from the presence of a free acid, which should previously be removed by a strong aqueous solution of baryta, which is to be added as long as there is any turbidity. On concentrating the liquid by evaporation, and when it has been reduced to about $\frac{1}{20}$th of its original volume, and become consistent, *kreatine* is deposited in crystals. "The quantity of kreatine obtained from different kinds of flesh, is very unequal. Of all kinds, the flesh of fowl and that of the marten contain the most, then that of the horse, the fox, the roe deer, the red deer, and hare, the ox, pig, calf, and finally, that of fishes."—(p. 45.) It is greater too in wild than in domestic animals, and its amount bears an obvious relation to the amount of fat, from fat flesh mere traces being sometimes obtained. Whilst kreatine has been found in the flesh of all the higher classes of animals, it has not yet been detected in the brain, liver, or kidneys, although it may be obtained in abundant quantity in the heart of the ox. On being purified, "the crystals of kreatine are colourless, perfectly transparent and of great lustre; they belong to the klinorhombic system, and form groups, the character of which is exactly similar to that of sugar of lead."—(p. 49.) The formula of crystallized kreatine is $C_8\ N_3\ H_{11}\ O_6$, whilst that of anhydrous kreatine is $C_8\ N_3\ H_9\ O_4$. Kreatine dissolves easily in boiling water, and a solution saturated at 212° forms on cooling, a mass of small brilliant needles. It is nearly insoluble in cold alcohol. It is neither acid nor basic.

"The action of strong mineral acids upon it is very remarkable. A solution of kreatine, to which, while cold, hydrochloric acid is added, gives by spontaneous evaporation crystals of unchanged kreatine. But when heated with strong hydrochloric acid, a solution of kreatine no longer yields crystals of that substance. The same result is obtained with sulphuric, phosphoric, and nitric acids. When kreatine is dissolved in one of these acids, and the solution gently evaporated, crystals are obtained, which are very soluble in alcohol, a property not belonging to kreatine. These crystals contain a portion of the acid employed in a state of combination."—(p. 53).

In this reaction from kreatine and the strong mineral acids, by a transformation of its elements a new body of totally different chemical properties (a true organic alkali) is formed, which Liebig has called *kreatinine*.* It is obtained pure from the sulphate or hydrochlorate. The crystals belong to the monoklinometric system. It is more soluble in cold water than kreatine; in hot water it is much more soluble; and it dissolves in boiling alcohol, aud crystallizes on cooling. In its chemical character kreatinine is quite analogous to ammonia. Its various reactions with chloride of zinc, nitrate of silver, corrosive sublimate, on the salts of ammonia, on those of copper, and on the bichloride of copper, which are decided, are noticed. The conversion of kreatine into kreatinine, by the action of mineral acids, depends on the separation of 4 equivalents of water; this gives for the formula of kreatinine $C_8\ N_3\ H_7\ O_2$.

Both kreatine and kreatinine have been found by Liebig to be constituents of the urine, and he asserts that the azotized substance discovered three years since by Pettenkofer* is a mixture of kreatinine with a little kreatine; and the urine will be found to be both a convenient and economical source of those substances.

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* We have had an opportunity of examining specimens of both kreatine and kreatinine obtained by Liebig himself, and presented by him to Prof. Gibson, of the University of Pennsylvania. They are now in the possession of Prof. Rogers of that institution.

Sarcosine is a new organic base, obtained by the action of boiling barytic water on kreatine. It is procured pure from the sulphate. The crystals of sarcosine are right rhombic prisms; acuminated on the ends by surfaces set perpendicular on the obtuser angles of the prism. They are of considerable size, perfectly transparent, and colourless; and are very soluble in water, quite sparingly in alcohol, and insoluble in ether. When dried at 212°, they retain their original aspect; at a somewhat higher temperature they melt, and sublime without residue. The formula for sarcosine is $C_6\ N_1\ H_7\ O_4$. It has no action on vegetable colours. It acts with acids as a powerful base. Kreatine contains the elements of sarcosine and of urea. "I have ascertained that a solution of urea in barytic water is resolved, by long boiling, into carbonate of baryta and ammonia, with the same appearances as those above described, [in the process for obtaining sarcosine;] and I have also ascertained that urea is present in the liquid when kreatine is boiled with baryta, if examined before the whole of the kreatine is decomposed."—(p. 75.) Sarcosine is isomeric with the *lactamide* of Pelouze, and the *urethane* of Dumas; but the insolubility of sarcosine in ether and alcohol is sufficient to distinguish it from either of these two compounds. Sarcosine and urea are not, however, the only products of the decomposition of kreatine by baryta; a substance much resembling urethane, of feeble acid reaction, uncombined with baryta, very soluble in water and alcohol, and in thirty parts of ether, crystallizing in long colourless prisms or scales, was also obtained, but in too small quantity for analysis.

"When the liquid from flesh, treated as formerly described, has entirely deposited the crystals of kreatine, and is somewhat further concentrated by evaporation, if alcohol be added to it in small quantities till the whole becomes milky, it deposits, when allowed to rest for some days, yellowish or white granular crystals, foliated or acicular crystals, which may be separated from the viscid mother liquid, although slowly, by filtration, and should be washed with alcohol. These crystals are a mixture of many different substances, among which kreatine is invariably found. If the whole of the phosphoric acid has not previously been removed from the original solution of flesh, this deposit will contain phosphate of magnesia; but the chief ingredient is the potash or baryta salt of a new acid, to which I shall give the name of *Inosinic Acid.*"—(p. 77.)

Inosinic Acid is easily prepared from the inosinate of baryta, by the cautious addition of sulphuric acid to separate the baryta; or from the inosinate of copper by the action of sulphuretted hydrogen. "Prepared by the other process, the solution of the inosinic acid has a strong acid reaction, and possesses an agreeable taste of the juice of meat. When evaporated, it yields a syrup, which, after weeks, exhibits no signs of crystallization. If this syrup be mixed with alcohol, the thick viscid fluid is changed into a hard, firm, pulverulent mass, of which alcohol dissolves only traces. From a concentrated aqueous solution the acid is precipitated in white amorphous flocculi. It is insoluble in ether."—(p. 78.) The quantity of this acid was not sufficient for an analysis of it, but the analysis of the baryta salt was sufficient to determine the composition of the acid. The formula of the anhydrous acid is $C_{10}\ N_2\ H_6\ O_{10}$; and if we suppose the baryta replaced by its equivalent of water, the formula of inosinic acid will be $C_{10}\ N_2\ H_7\ O_{11} = C_{10}\ N_2\ H_6\ O_{10} + HO$.

Inosinates of potash, soda, baryta, copper, silver, have been already obtained. Inosinic acid is probably a coupled acid.

Lactic Acid has been found by Liebig to be a constituent of flesh,—the analysis given showing "that the non-nitrogenized acid occurring in the animal organism is identical with the acid formed in milk when it becomes sour, and into which sugar of milk, starch, grape sugar, and cane sugar are converted by contact with animal substances in a state of decomposition."—(p. 93.) Thus confirming the researches of Dumas† and others. The supposed office of lactic acid in the economy will be presently mentioned. Liebig obtained the lactates of lime and zinc from this source, and analyzed them. The large quantity of inorganic substances contained in the juice of beef has already been indicated by Chevreul. The preponderating inorganic constituents of the juice of flesh, are the alkaline salts. Now, as every part of the animal organism has its significance, Liebig thought it of importance to make some experiments on the nature of the mineral acids and alkaline bases occurring in the juice of flesh, and their mutual relations; experiments which, however imperfect, might still serve as points of departure for future researches.

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* Annalen der Chemie und Pharmacie, vol. lii. p. 97.

† Chimie Physiologique et Médicale, p. 697, Paris, 1846.

The ash of the juice of meat, according to Liebig, contains only alkaline phosphates and chlorides; no alkaline carbonates or sulphates are present. The soluble salts contain the different modifications of phosphoric acid, which are easily distinguished by their action on nitrate of silver. The ashes of the juice of flesh, in the horse, ox, fox, and roe-deer, contain salts of phosphoric acid, with two atoms (pyrophosphates), and with three atoms (tribasic phosphates) of fixed alkaline base. The ashes of the juice of the flesh of fowl give a different result; they contain alkaline pyrophosphates and metaphosphates. "The whole amount of alkalies, therefore, present in the juice of the flesh of the ox, horse, fox, and roe-deer, is not sufficient to convert the phosphoric acid of the juice entirely into the so called neutral salt, that is the salt with three atoms of fixed base. In the fowl, the whole of the alkali is not even sufficient to convert the phosphoric acid entirely into the salt with two atoms of fixed base."—(p. 98.) It is, hence, evident that the organic acids present in the juice, the lactic inosinic acids, &c., taken together, are not sufficient to form neutral salts with the alkalies contained in it—the potash and kreatinine; "and this necessarily implies that the acid reaction of the juice of flesh is caused by the presence of acid salts of the alkalies with the three acids, phosphoric, lactic, and inosinic acids. Inosinic acid constitutes too small a part of the juice to allow us to ascribe to it a perceptible share in producing the acid quality of that fluid; and this acidity depends, therefore, on the presence of acid alkaline lactate and acid alkaline phosphate, (phosphate with one atom of alkali;) or, in other words, of neutral alkaline lactate and phosphate, along with free lactic and phosphoric acids."—(p. 99.) An equilibrium exists between these free acids.

The blood-vessels and lymphatics contain an alkaline fluid, whilst that of the flesh is acid; the tissues of which the vessels are composed are permeable for the one or the other of these fluids. "There then," observes Liebig, "are two conditions favourable to the production of an electrical current, and it is far from improbable, that such a current takes a certain share in the vital processes, although its action be not always indicated by proper electrical effects."—(p. 104.)

Liebig considers as proved, "that the lactic acid of the organism is employed to support the respiratory process, and the functions performed by sugar, starch, and in general all those substances which, in contact with animal matters, are convertible into lactic acid, ceases to be an hypothesis. The substances are converted in the blood into lactates, which are destroyed as fast as they are produced, and which only accumulate where the supply of oxygen is less, or where some other attraction is opposed to the agency of that element."—(p. 103.)

The differences of the salts in the juice of flesh, and in the blood and lymph, are next considered. In the former, we have phosphate of potash and chloride of potassium; and in the latter, phosphate of soda and chloride of sodium. "But perhaps the most interesting observation," observes the editor, Dr. Gregory, "next to the discovery of kreatine as a constant ingredient of flesh, of kreatinine, a powerful base in the juice of flesh, and of both in the urine, is the demonstration, complete, as it appears to me, *of the true function of the phosphate of soda in the blood*. This function, that of absorbing carbonic acid and giving it out in the lungs, is here shown to depend on the minute chemical characters of the salt in question, and we now see how it happens that phosphate of soda is essential to the blood, and cannot be replaced by phosphate of potash, a salt which, although in many points analogous, differs entirely from phosphate of soda, in its tendency to acquire an acid instead of an alkaline reaction, and in its relation to carbonic acid. In this way, the beautiful researches of Graham, on the phosphates, are now finding their application, in the minutest point, to physiology. The same remark applies to the action of common salt on the phosphate of potash, which satisfactorily accounts for the presence of soda in the blood of animals whose food contains only phosphate of potash, but which either find common salt in their food, or obtain it in addition."—(Preface, p. ix.) "It is easy to see," says Liebig, "that a more exact study of the influence which alkalies, salts, and the mineral acids exert on the respiratory process in the normal state, must lead to the most beautiful and valuable results, in regard to their employment in various diseases"—(p. 120.)

The third section is on the "Practical Application of the Results of the Foregoing Investigations." The effect of boiling, on flesh, is first considered. From the removal of its essential constituents, boiled meat, without the soup formed in boiling it, is so much the less adapted to nutrition, the greater the quantity of the water in which it has been boiled, and the longer the duration of the boiling. Cold water extracts all the soluble constituents of flesh. The smell and taste of roasted flesh are due to the soluble constituents of the juice, which have undergone a slight change under the influence of the higher temperature. Flesh which has been rendered quite tasteless by boiling with water, acquires the taste and all the peculiarities of roasted flesh, when it is moistened and warmed with a cold aqueous infusion of raw flesh which has been evaporated till it has acquired a dark brown colour. The flavour of soup, and of the different kinds of flesh, depends on the soluble matter, and it is heightened by lactic acid, or by chloride of potassium. The *stock* employed so much by cooks, is essentially a concentrated infusion of flesh. Its addition not only improves the flavour, but often restores the soluble matter removed in previous operations, and thus renders it much more wholesome and nutritious than it otherwise would be. The proportion of fibrine and albumen in flesh, is always in inverse proportion. The flesh of old animals contains much fibrine and but little albumen. The tenderness of boiled or roasted meat, depends on the quantity of the albumen deposited between the fibres and there coagulated; for the contraction or hardening of the fibrinous fibres, is thereby to a certain extent prevented. It depends also on the duration of the boiling; for the albumen also becomes harder by continued boiling, without, however, assuming a tough consistence.

Liebig recommends, as the best mode of boiling meat, that the water be in a state of ebullition when the flesh is introduced, that the boiling be kept up for some minutes, and then so much cold water added as to reduce the temperature of the water to 165° or 158°; and the whole kept at this temperature for some hours. By this method, the albumen of the surface is coagulated immediately, and a crust being formed, the external water cannot act on the flesh, and the cookery is effected by the gradual transmission of the heat to the interior of the mass. "The flesh retains its juiciness, and is quite as agreeable to the taste as it can be made by roasting; for the chief part of the sapid constituents of the mass is retained, under these circumstances, in the flesh."—(p. 126.)

Liebig's formula for making soup is as follows:—

"When 1 lb. of lean beef, free of fat, and separated from the bones, in the finely-chopped state in which it is used for beef sausages or mince-meat, is uniformly mixed with its own weight of cold water, slowly heated to boiling, and the liquid, after boiling briskly for a minute or two, is strained through a towel from the coagulated albumen and fibrine, now become hard and horny, we obtain an equal weight of the most aromatic soup, of such strength as cannot be obtained even by boiling for hours, from a piece of flesh."—(p. 132.) Salt and other condiments are to be added, and it may be tinged somewhat darker by means of roasted onions or burnt sugar. This forms, Liebig affirms, the very best soup that can in any way be prepared from 1 lb. of flesh. By evaporation to dryness in the water-bath, a dark brown soft mass is obtained, of which half an ounce suffices to convert 1 lb. of water, with the addition of a little salt, into a strong, well-flavoured soup. The tablets of so-called portable soup are not to be compared to this extract of flesh, for they consist principally of gelatine, which is not nutritious. Liebig thinks that his extract of flesh will prove invaluable for the provisioning of ships and fortresses, instead of salt meat, which, when prepared in the ordinary manner, is deficient in nourishing properties, the brine abstracting the chief nutritious constituents; the albumen, soluble phosphates, lactic acid, kreatine, and kreatinine. Liebig suggests that the use of a salt containing chlorides of calcium and magnesia, may render the meat thus prepared less unwholesome; for, if along with such meat, vegetables rich in potash, be eaten, the conditions are present which determine the reproduction during digestion, of the deficient alkaline phosphates.

Liebig, who previously had stoutly denied the presence of lactic acid in the gastric juice, now admits its existence on the faith of Lehman's experiments, and observes, "and thus the problem of the digestive process in the stomach would appear, in its chemical aspect, to be completely solved!"—(p. 138.)

In conclusion, the distinguished author desires distinctly to state that he is far from considering the researches contained in the present work, as complete; they are, on the contrary, the first steps in a new career; and indicate alone the path to be hereafter pursued by chemists. The subject is only opened, much less exhausted; many obscure points are still to be elucidated; and various substances are yet to be distinguished in the muscular tissues alone.

Independent of valuable positive results, the character and tone of the work are, as the reader will perceive from the analysis we have attempted, eminently philosophical, with the single exception before alluded to,—an extreme acerbity in the controversial portions. M. C.

ART. XXIII.—*On the Causes and Treatment of Abortion and Sterility: Being the result of an extended practical inquiry into the Physiological and Morbid conditions of the Uterus, with reference especially to Leucorrhœal affections and the Diseases of Menstruation.* By JAMES WHITEHEAD, F. R. C. S., Surgeon to the Manchester and Salford Lying-in Hospital. Και γαρ εγων, επικουρος εων, ... ηκω . . . 'Αλλ' ἄγε δὴ καὶ νῶϊ μεδώμεφα θούριδος αλκης. Hom. Ili., Lib. v. Quidquid valde utile sit, id fieri honestum, etiam si antea non videretur.—Cic. de Offi., Lib. iii. 8vo. pp. 368. Philadelphia: Lea and Blanchard.

THE work of Mr. Whitehead presents a very clear and satisfactory account of the physiology, hygiene, and morbid affections of the uterus, in a plain unaffected style. The observations of the author are evidently the result of extensive personal researches carefully conducted, and, under circumstances particularly well adapted for the acquisition of correct views in reference to the class of uterine diseases, to which the volume more particularly refers. The pathology and treatment of these diseases, are illustrated by a series of cases, which have been studiously divested, so far as is consistent with the entireness of the leading phenomena, of all prolix particulars, such as daily reports respecting the character of the pulse, appearance of the tongue, the state of the secretions, &c., which usually render cases so tedious in the perusal. No general rules are presented in respect to the treatment of the affections described, for the simple reason, the author remarks, that much remains still to be done in this branch of practice, and also, because he believes sufficient to be said on that subject, in connection with the illustrative cases.

The first four chapters are devoted to the physiology of menstruation and the diseases of this function. The author considers in detail the signs and the age of puberty, the conditions which principally influence menstruation at its commencement; the properties of the menstrual fluid; the surface by which it is secreted, and the age at which menstruation finally ceases; the influence of climate and employment in influencing the development of puberty, and the influence of temperament and habit of body, in determining the character of disease in difficult menstruation, embracing some interesting remarks upon the scrofulous diathesis.

The diseases of menstruation are considered under the heads of retention and suppression of the menses, difficult menstruation, and vicarious and metrorrhagic menstruation. The diseases of the last menstrual crisis treated of by Mr. Whitehead, are purulent leucorrhœa, uterine hæmorrhage, endo-uteritis, uterine phlebitis, cauliflower disease of the cervix uteri, with malignant degeneration of the uterine appendages, and finally corroding ulcer of the uterus.

The fifth chapter treats of the signs of pregnancy, and the four succeeding chapters are devoted to the subject of abortion. In this latter connection, we have some interesting remarks on the actual duration of the child bearing period; and the period of pregnancy at which abortion most frequently occurs. As causes of abortion, the author enumerates, first, circumstances unconnected with disease of the uterus, placenta prævia and functional impediment of the bowels, retroversion of the uterus and congestion of the uterine circulation; and secondly, abortion associated with certain morbid states of the uterus. The tenth and last chapter treats of sterility.

Many of the facts recorded in the volume before us, are in a great measure new, this is particularly true in reference to the observations of the author in reference to some of the phenomena of menstruation, especially the nature, properties, and source of the menstrual fluid, whether normal or spurious; the physiological and pathological changes observed in the lower part of the uterus during pregnancy, and the curative means to be adopted for the removal of the latter; and also many of the facts detailed by Mr. Whitehead, in reference to the peculiar action of the syphilitic poison upon the uterus, and its transmissibility to the offspring after having been for a long period latently existing in the maternal system.

The entire treatise is replete with valuable materials for the elucidation of the pathology and effects of the more frequent diseases of the uterus, a class of diseases of very common occurrence, and productive often, if not of severe suffering, at least, of great discomfort to the patient; always impairing her health, and occasionally endangering her life, by occasioning repeated abortions or gradually producing a serious morbid alteration of the tissues of the uterus; unfortunately, however, the frequency of their occurrence, their true character, and their symptomatology and treatment have been but little attended to by the profession generally. As very properly remarked by our author, the investigation of uterine pathology has always been looked upon as fraught with peculiar difficulty; as involving the necessity of a procedure to which insuperable objections are likely to be raised. It is needless to remark how entirely this allegation is fanciful and unfounded. In ninety-and-nine out of every hundred cases in which there is reasonable grounds for suspecting the existence of uterine disease, interfering as it does with every comfort, and spoiling every enjoyment of life, any perplexity that may arise merely against the mode of administering to the relief of the malady, cannot, and does not originate with the sufferer.

As a specimen of the author's manner of treating of the diseases of the uterus, we present his remarks on *endo-uteritis.*

"This form of disease is one of a strictly local character, of every day occurrence, and very amenable to treatment. It nevertheless acts as a common cause of abortion during the early months of pregnancy; and it constitutes, in the majority of instances, the pathology of that species of disordered or difficult menstruation known as dysmenorrhœa. It does not occur as a necessary consequence, however, that dysmenorrhœa, as commonly witnessed in early life, indicates the existence of a condition likely to create an inaptitude for child-bearing afterwards; on the contrary, the symptoms in the virgin are often of a purely nervous, or what is understood in common parlance, of an hysterical character, unaccompanied with inflammatory action, and they frequently undergo complete cure by marriage.

"Endo-uteritis is a term employed to signify inflammation of the lining membrane of the uterus. The affection sometimes implicates the cavity of the cervix, or that of the lower part of the organ only; at other times, the whole lining membrane is involved, and it not unfrequently extends within the Fallopian canals to their outer extremities. The inflammation is generally of a chronic, although of a very irritable character; and under certain states of excitement, as febrile irritation, resulting from the application of cold, or of accidental violence; inordinate venereal indulgence; the action of the gonorrhœal or syphilitic virus, &c.; the deeper textures of the uterus and neighbouring organs may be seriously implicated.

"Its anatomical characters are similar to those of the mucous tissues, under like circumstances. It rarely exists, perhaps, in a sufficient degree of severity to occasion a fatal issue, uncomplicated with other disease; but it is frequently noticed as a concomitant condition of general *metritis*, uterine *phlebitis*, inflammation of the uterine lymphatics, *metroperitonitis*, gangrenous inflammation, *ramollissement*, disease of the Fallopian tubes, or of the ovaries, and the various forms of fatal puerperal and other similar affections.

"The symptoms of endo-uteritis are, distention of the hypogastrium, accompanied with a constant, deep-seated aching behind the pubis; irritable bladder; pain of the loins, or of the inguinal regions, and of one or both sides of the abdomen on a level with the umbilicus; languor; irritative fever; and vaginal discharge. The whole uterus is often found in a state of inflammatory hypertrophy, and extremely painful upon pressure. Especially at the *back part of its body*, where it impinges upon the rectum. The cervix is hard and less sensitive, but slight succussion made upon this part, develops a painful sensation about the inguinal or umbilical region, or across the loins. Examined with the speculum, the labia present a tense, glistening appearance, and a ring of vivid redness surrounds the orifice; this, in some cases, is seen to extend upon the surface of the *posterior* lip. Sometimes one or both labia are excoriated, eroded, or fissured.

"Endo-uteritis is occasionally met with in a much less painful form than the preceding; the organ being free from tenderness upon pressure, the constitutional disturbances less acute, and the symptoms are altogether of a milder character. The discharge, however, is equally profuse, and possesses the same sensible properties; the labia are softer, sometimes flabby, their opposing surfaces, which generally remain in contact, or nearly so, presenting a wavy or fringed appearance, with sharp margins, turned slightly inwards, and having a bright red, granular aspect. The first or more acute form of the complaint is met with during the first months of pregnancy, or immediately before or after menstruation, when the disease attacks the unimpregnated; the latter supervenes upon the former, and is generally seen a week or two after the occurrence of abortion, or after delivery, in cases where the process has attained the full period.

"Accumulation of air within the uterus, is a condition frequently accompanying inflammation of its lining membrane. It is commonly discharged in the form of bubbles, which may often be seen to form and burst in rapid succession during specular inquiry. There is reason to believe that it sometimes collects in considerable quantity, causing great suffering, by distention of the uterine walls, and being expelled by sudden contraction of the organ, accompanied with severe forcing pains like those of labour. Generally speaking, it emits an offensive odour, owing in most instances, probably, to decomposition of the small coagula liable to be retained after menstruation, or which may also be thrown out at other times. It may possibly be, on some occasions, the product of secretion.

"Endo-uteritis is generally first noticed during pregnancy, coming on after exposure to cold, or as a consequence of fatigue, violent efforts, luxurious living, anxiety, sexual indulgence, and the like. It is sometimes the result of abortion, induced by accidental violence, or of difficult labours, especially such as necessitate instrumental interference, and of imprudent practices during the puerperal period. It sometimes manifests itself at the time corresponding to the next monthly period after conception has taken place, the usual premonitory symptoms of menstruation being developed, but unaccompanied by catamenial discharge. If leucorrhœa have previously existed, this secretion becomes for the time, augmented, and may continue in undiminished quantity afterwards. Severe aching of the loins and hypogastrium is experienced, accompanied with rigors, irritative fever, loss of rest, &c., and at some indefinite period subsequently, on the application of an exciting cause, perhaps of a very trivial nature, hemorrhage comes on, and the process is at once determined. It is not always that pregnancy is suspected to exist under these circumstances; the escape of clots of blood and of mole growths, being looked upon as the result of disordered or deferred menstruation, are consequently seldom submitted to examination; the phenomena are often allowed to be repeated at intervals, for years, the case being regarded as irremediable, or not suited for ordinary medical experience. The ovum thus early thrown off, exhibits itself in the state of what is commonly called the apoplectic mole, retaining still its isolated condition; its implantation upon the decidual surface having been prevented by the diseased condition of the newly formed structure. When expulsion takes place during the third month of pregnancy, the ovum is generally detached with its envelopes entire; and the unshapely mass which the product thus exhibits, constitutes what is vulgarly denominated a 'false conception.' In the latter, as in the preceding case, abortion is caused by any inflamed state of the inner surface of the uterus, resulting in an imperfectly organized condition of that portion of the decidual membrane which is contiguously situated Utero-gestation, however, may be continued to its full term, although the inner surface of the uterus remain in a state of chronic inflammation the whole time; but the process is accompanied with great suffering, and likely to be frequently endangered. The decidual membrane is generally found greatly thickened, tufted, vascular, and not unfrequently exhibits appearances of recent inflammatory action, and the placenta is interspersed with fibrinous deposits.

"The treatment consists in local or general bleeding, regulated according to the strength of the patient, and the urgency of the symptoms; in the exhibition of alterative and soothing medicines; and in injections within the uterus, when unimpregnated."

We recommend the work of Mr. Whitehead to all who may desire to study the observations of a cautious, experienced, and candid practitioner, in reference to a class of ailments, which will be presented to the notice of every one engaged in extensive practice almost daily, and which will demand close attention to determine their proper character, and a judicious application of appropriate remedies, to arrest their progress and effect their entire removal. D. F. C.

Art. XXIV.—*On Poisons in relation to Medical Jurisprudence and Medicine.* By Alfred S. Taylor, F. R. S., Lecturer on Medical Jur. and Chem., in Guy's Hospital, &c. Edited, with notes and additions, by R. Eglesfeld Griffith, M. D., &c. pp. 687. 8vo. Philadelphia: Lea and Blanchard, 1848.

This amplification of the treatise on toxicology contained in the author's manual of medical jurisprudence, was called for by the rapid advances of science, the great increase of the crime of poisoning, and the necessity of "collecting and arranging in a convenient form for reference, those important medical facts in relation to death from poison," which must form the basis upon which the proper administration of justice in such cases is to be founded.

During the three years which have elapsed since the former publication alluded to above, much has been done in medical jurisprudence, and the work before us bears ample evidence of the author's assiduity in collecting cases bearing upon toxicology, and of his thorough knowledge of the whole subject, both in its medical and legal aspects, and as affected by advances in science or by recent judicial decisions. The American editor—whose additions are valuable—has, in a few words, given the characteristics of Mr. Taylor's work. "It is an elaborate epitome of all that is known on the subject of the poisons, and is amply illustrated with cases, so as to exemplify the relative value attached by juries to the various symptoms induced by the respective articles, and also of the modes of detecting these articles as given by the best authorities." C. R. K.

Art. XXV.—*Bericht des Gesundheitsrathes an die hohe Regierung des Kantons Zürich über des Medicinalwesen des Kantons im Jahr.* 1846. 8vo. pp. 107. Zürich: 1847. *Report of the Council of Health to the Supreme Government of the Canton of Zurich, in relation to the medical affairs of the Canton during the year* 1846.

This very instructive report embraces, first, an account of the prevailing diseases—endemic, epidemic, and sporadic—remarks on the effects of particular remedies, drawn from the experience of the leading physicians of the canton, notices of the more important surgical cases, puerperal affections, and diseases of children; and a few interesting toxicological observations. The second part embraces a view of the affairs of the several medical institutions of the canton, of the policlinic, and of the prisons of the canton, in a medical point of view. The third part presents a general notice of the official acts of the council of Health, in reference to apothecaries, midwives, forensic and military medicine, instruction, and veterinary medicine. This part comprises a table of births, report on vaccinations and revaccinations, and a tabular view of the deaths that occurred in the canton, during the year 1846. The report concludes with a notice of the number and character of the diseases affecting the domestic animals.

The whole number of births in the canton, during the year 1846, was 7283, in a population of 231,576—of these births 3758 were males, and 3525 females, and two abortions whose sex was not determined—136 were twins—6970 were born under the care of midwives without help, and 313 with the assistance of obstetric physicians. The forceps were employed in 159 cases, and version practised in 72—of the 7283 children born, 350 (202 males and 148 females) were born dead—namely, 85 (47 males and 38 females) prematurely, and 265 (155 males and 110 females) at the full period; of those born alive, 207 (128 males and 79 females) died before baptism.

During the year 1846, 5304 individuals were vaccinated, in 5200 cases successfully; revaccination was performed in 153 cases, successfully in 66 cases, and with only partial or no success in 65 cases; in the other cases the result could not be ascertained.

The whole number of deaths in the canton, during the year 1846, was 5928—3076 males and 2852 females, being 1 in 39 of the population—of the deaths, 2464—1200 males and 1264 females, occurred in married, widowed, or divorced persons, and 3464—1876 males and 1588 females, in unmarried persons. Deductions 380 dead born—of the deaths, 1870 occurred in persons under one year of age; 450, between 2 and 10 years; 200, between 10 and 20; 322, between 20 and 30; 316, between 30 and 40; 358, between 40 and 50; 474, between 50 and 60; 790, between 60 and 70; 603, between 70 and 80; 157, between 80 and 90; and 8 over 90 years of age. Of the deaths, 1472—702 males and 770 females, occurred during the months of January, February, and March; 1646—870 males and 776 females, during the months of April, May, and June; 1541—790 males and 751 females, during the months of July, August, and September; 1269—684 males and 585 females, during the months of October, November, and December.

From the remarks on individual remedies, we extract the following:

Ext. Sem. Stramonii.—Professor Locher-Balber praises the effects of this remedy, not only in cases of neuralgic and rheumatico-gouty pains, but also in the latter stages of cases of a more inflammatory character, as cephalalgia, hemicrania, odontalgia, arthralgia, ischias rheumatica and arthritica, and rheumatica sclerotitis. He states that the dose may be safely increased, until it produces symptoms of intoxication, dryness of the throat, dimness of vision or even diminution of consciousness.

Ext. Solani Tuberosi.—This article appears to Dr. Rahn to be a valuable addition to our materia medica. In cases of spasmodic cough, in the second and third stages of hooping-cough, and in the obstinate, dry irritative cough in arthritic cases, and in cases of chronic tuberculosis, it acts as a calmant more certainly than either hyoscyamus or belladonna, while it does not produce the same disagreeable effects upon the sensorium; nor does it, like opium, confine the bowels. He has never seen congestion of the brain produced by it, even when given in doses of from ⅛ to half a grain.

Rhus Toxicodendron.—Dr. Behr has found this article beneficial in cases of rheumatism and ischias, when the pain is most severe during a state of repose, and when the disease has resulted from suppressed perspiration. He gives it in the form of infusion, one scruple of the leaves to six ounces of water. The infusion to be strained before it is used.

Secale Cornutum.—Dr. Aschmann has had ample experience of the good effects of this remedy in arresting hemorrhage from the uterus, unconnected with inflammation. He employs an ethereal solution of the oily matter of the ergot. Equal parts, by weight, of the ergot and of ether are to be digested together for seven days; the ether is then to be evaporated, and the remaining oily matter is to be dissolved in one-half the amount of ether employed in the first instance. In cases of simple metrorrhagia, he gives six to eight drops of the solution, four or five times a day. When he fears the stimulating effects of the ether, he directs the dose to be dropped upon a small portion of loaf sugar, which is to be held for a few minutes in a stream of air, to cause the ether to evaporate. He believes that the remote narcotic effects of the ergot is entirely removed by the preparation just described.

Hydrarg. Cyanogenat.—Dr. Schneebeli has found six grains of this preparation, combined with half an ounce of lard, to be a very effectual remedy in cases of hydrocele, both congenital and acquired. It is to be rubbed into the scrotum once or twice daily. The removal of the swelling is effected by it in a short time, and permanently. In some cases, where the skin is very delicate, inflammation and ulceration have followed its use.

Argenti Nitric.—From the strong recommendation of others, Dr. Rahn was induced to try the effects of this article in cholera infantum. He believes it not to be well adapted to the first stages of the disease. It quickly arrests the discharge from the bowels, but not permanently, the slightest cause inducing their return; and if the remedy is continued for any length of time, it is apt to produce a submucous inflammation of the intestines, endangering the occurrence of marasmus, particularly in very young patients. In the more chronic forms of the disease, attended with an exhausting diarrhœa, the nitrate of silver will often be found beneficial; even in these cases, however, Dr. Rahn considers the bitter astringents, especially the cinchonin and salacin, to be preferable remedies, the long continuance of the latter being unattended with the danger consequent upon the protracted administration of the former.

Ol. Jecor. Asselli—As a corrigent of this remedy, Dr. Diener recommends the *elix. pect. Danic*, one part of the latter to from two to five of the oil. The external application of the oil, combined with opodeldoc and spir. sal. ammon. caust., he praises as an external application in cases of scrofula, rhachitis and arthritis.

Iodkali.—By a methodical pressure, by means of a plate of lead and adhesive plaster, and the internal use of Iodkali, given to the extent of producing intoxication, Dr. Schäfer succeeded in healing a case of scirrhous mamma. He gave the remedy in the form of pills, commencing with four grains, and gradually augmenting the dose to eight grains, daily. The treatment occupied from ten to twelve months.

Succus Dauci rec. exp.—Dr. Rahn is of opinion that this remedy has fallen improperly into disuse. He has seen the best effects result from its use, to the extent of from three to four ounces daily, in cases of hepatitis, chronic jaundice, and congestion of the portal system. D. F. C.

ART. XXVI.—*Ueber Aether-Rausch (Phrenopathia ætherea), mit besonderer Rücksicht auf die jüngsten Erfahrungen in England und Frankreich, von* DR. E. NATHAN, Practischen Arzte in Hamburg. 8vo. 50 pp. Hamburg: 1847.

On Ether-Intoxication (Phrenopathia ætherea), with especial reference to the most recent Observations in England and France, by E. NATHAN, M. D., of Hamburg.

THIS is a sensible, calm, and cautious exposition of the practice of ether inhalation, as a means of inducing insensibility to pain during surgical operations and in parturition, and for relieving painful and other disagreeable symptoms in various cases of disease. The author, it is true, presents nothing new on the subject, but he has compared and arranged, with great judgment, the numerous observations in reference to the subject that had been made public up to the period when his communication was written. He has given, with the most perfect impartiality, the testimony borne in favour of the exhibition of the ether as an anodyne, by the leading physicians and surgeons of England, France, and Germany, and with equal honesty, he has detailed a variety of cases, collected from the leading medical journals of Europe, in which the use of the ether gave rise to disagreeable, injurious, or even fatal results. Dr. Nathan is perfectly alive to the importance, under particular circumstances, of the surgeon and physician having at their command a means of inducing insensibility to pain, without endangering either present or future injury to the constitution; he is, nevertheless, neither carried away by the popular cry in favour of the ether inhalation, nor prepared from the reported instances of its injurious effects to condemn its use under all circumstances and in all cases. He, however, inculcates caution, and a more minute and careful inquiry into the circumstances and cases in which its employment will be proper or otherwise, and into the extent to which the inhalation may be carried so as to produce its complete anodyne effects, without endangering the life, health, or comfort of the patient.

We recommend a perusal of Dr. Nathan's Essay to the ardent partizans of ether inhalation in this country. To hear the enthusiastic praises bestowed upon the practice by some of its advocates, we might be led to believe that under all circumstances, it may be resorted to and carried to any extent, without fear of the slightest bad effects resulting. D. F. C.

Art. XXVII.—*A Practical Treatise on the Causes, Symptoms, and Treatment of Spermatorrhœa.* By M. Lallemand, formerly Prof. Clinic. Surg. at the University of Montpelier, &c. &c. Translated and Edited by Henry J. McDougall, Member of the Royal Academy of Surgeons of England, &c. &c. pp. 320. 8vo. Phila. Lea & Blanchard: 1848.

While investigating certain cases which had been referred to him as diseases of the brain, M. Lallemand, whose valuable work on these affections is well known to the profession, was struck with the fact that they presented features which were not to be accounted for by any known affection of this organ; upon closer scrutiny he discovered that the patients were affected with involuntary seminal discharges, which laid the foundation of the most serious physical, and moral suffering, destroying the health and energy of the individual, and causing in the end death. A careful study of these cases, about 150 in number, showed him the importance of his discovery, and aware of the entire ignorance, on the part of the profession, of these diseased conditions, he determined to lay the valuable facts he had collected before the profession, even before he had been able to complete the investigation of all their features. Accordingly, in 1836 he published a volume, containing a detailed history of a large number of his cases, which, while they were intended to show chiefly the causes of spermatorrhœa, presented very clearly the symptoms which attended it, and the method of treatment, which, in his hands, had proved completely successful in effecting a cure.

Soon after the appearance of this volume in France, it was translated into English, by Dr. Wood of Portland, Maine, published in Dunglison's Medical Library, and thus extensively circulated throughout the country, carrying to the profession, information respecting this important, but hitherto unexpected class of diseases, of which it was not slow in availing itself. The work, however, was still imperfect, but in 1839 and 1841, the concluding portions were published in France, thus presenting a complete and admirable monograph of this interesting and important disease. No translation of these had been made here, and their matter was hardly known here, for we had become familiar with the main facts and reasonings on the subject, and with the modes of treatment, and the farther study of it had lost much of its practical interest—a matter to be regretted, for these last volumes are full of valuable material, and bear evidence of the great zeal and learning of the author, worthy even of his great reputation.

It is not, however, our intention at this late day, to write a review of this work, but merely to direct attention to the republication in this country of what, on the title page, purports to be a translation, but, in the preface, is called a "condensed edition" of M. Lallemand's work. The translator's aim, as he tells us, has been rather "to render the sense of the author in as few words as possible, than to give a full and literal translation" of a voluminous work, in which, he very justly remarks, there are many repetitions, due to the fact of its different parts having been written at long intervals of time. With a view of diminishing the size of the volume, he presents only a little more than one-half of the original cases; but those retained are quite sufficient to illustrate the subject; and he has omitted all M. Lallemand's "interesting researches on spermatozoa, except so far as they refer to the diagnosis of spermatorrhœa," and other matters of no great practical interest.

Now while we cannot but admit, that it is more important that we should have an abstract of any valuable discoveries in science, than that they should remain a sealed letter to the world, we are satisfied that brevity often occasions confusion, and that this method of treating an author, often makes him appear to assert dogmatically what he really advances with corroborative proof. Besides, the charms of style, the richness of illustrative criticism, the evidences of profound learning, all matters which make us appreciate more highly and stamp his observations with additional weight, almost always suffer an eclipse.

Such, we must confess, are the consequences of the translation to which our author has been subjected, for though in the main his opinions are correctly given, there are instances in which he is made to assert that which he does not intend to convey, and there are numerous errors of rendering, which are certainly evidences either of carelessness, or of ignorance of the spirit of the French language, on the part of the editor, as he calls himself. Now it is not in a spirit of hypercriticism that we make these remarks,—but because we have, in different places, seen laudatory notices of the translation itself—notices which it does not deserve —and we would bear our testimony against this careless manner of rendering authors responsible for opinions they never entertained, and which are very often the offspring of inattention and hurry in performing what is a matter of far more difficulty than is generally supposed.

We have long had it in our mind to make these remarks, and this occasion is the more readily embraced, because, although the translation is justly liable to them, there is a remark in the preface, not so intended by the translator, which might lead to the idea that M. Lallemand himself had authorized this version.

We must, in conclusion say, that our worthy friends the publishers, have not done justice to this work, either in the paper, or in its general appearance—for it deserved a good dress, the subject to which it relates being of such interest as to make the volume sought after. We would, indeed, advise every member of our profession to make himself master of its contents, and to place it on his shelves for reference, for, as we have said before, in the main the author's views and opinions are correctly given. C. R. K.

Art. XXVIII.—*Medico-Botanical Catalogue of the Plants and Ferns of St. Johns, Berkly, South Carolina.* An Inaugural Thesis submitted to the Dean and Faculty of the Medical College of the State of South Carolina, for the Degree of M.D. By Francis Payne Porcher. Charleston, 1847: pp. 55, 8vo.

A Catalogue of the Medicinal Plants, Indigenous and Exotic, growing in the State of New York; with a brief account of their Composition and Medical Properties. By Charles A. Lee, M. D., Professor of Materia Medica in Geneva Medical College, and the University of Buffalo, &c. New York, 1848: pp. 64, 8vo.

These two publications show, that the long neglected study of our native plants is, as regards their medicinal properties and uses, now beginning to attract the attention of the profession in all parts of the United States, and we trust these little works will prove but the harbinger of others from all parts of our wide spread Union, giving the experience of the authors with the various vegetable productions of their immediate neighbourhoods. Whether this awakening of our medical brethren to the importance of the thorough knowledge of the remedial qualities of our indigenous productions, has arisen from the well-timed recommendation of the late Medical Convention held at Philadelphia, or has been the result of other causes, is of little importance; it is sufficient to know that it has taken place, and we look forward with much hope to the future, when this new spirit of inquiry will be more fully developed, and more widely spread, for vast and valueless results. From the few and imperfect notices of the virtues and compositions of the articles of our native materia medica, it must be evident that we possess equivalents for almost every article of foreign origin, and we trust the time will arrive, when we shall cease to be dependent on extraneous sources for our *apparatus medicaminum.*

There is not much that is new in these two publications, as they are both compilations from works already in the hands of the profession, but at the same time both contain interesting facts in relation to some of the articles that are new, and worthy of remembrance. That of Dr. Lee, as might be expected from his experience as a writer, is by far the most judicious in its arrangement and in the skill which is displayed in its execution; at the same time it must be fully conceded that the essay of Dr. Porcher affords evidence of much talent and industry in so young a member of the profession, and fully merits the award of the committee appointed by the Faculty of his alma mater, to select from among the theses that most worthy of publication. In some points he has done better than Dr. Lee—in the copiousness of his references, and in the catalogue of plants he has prefixed to his essay. Dr. Lee has arranged his work according to the natural orders as given by Dr. Torrey, in his "Flora of the State of Yew York," to which this essay forms an excellent accompaniment.

Dr. Porcher has adopted an alphabetical arrangement, which has the disadvantage of separating plants closely allied in character and properties, widely from each other. Both treatises, as we before said, are creditable to the authors, and deserve the attention of the profession. R. E. G.

Art. XXIX.—*Principles of Physics and Meteorology.* By J. Muller, Professor of Physics in the University of Frieburgh. First American edition. Revised and illustrated with 538 engravings on wood, and two coloured plates. Philadelphia, Lea & Blanchard, 1848.

The space at our command allows us to do little more than announce the publication of this volume, and to invite the attention of the profession to it. An acquaintance with Natural Philosophy, Chemistry, and the use of the Microscope, are essential to a knowledge of medicine in its present advanced condition, and the student who neglects these preliminary studies, need not hope to be able to apprehend the fundamental branches of our science—anatomy, physiology, and pathology.

We must not omit to notice the profusion of beautiful illustrations in this volume, and the style of elegance, indeed, luxury, in which it is got up—altogether unusual in works of this description.

Art. XXX.—*The Natural History and Diseases of the Human Teeth.*—By Joseph Fox, M. R. C. S. L., &c. First American, from the third London edition. Remodelled, with an introduction and numerous additions, by Chapin A. Harris, M. D. D. D. S., Professor of Practical Dentistry and Dental Pathology in the Baltimore College of Dental Surgery, &c. &c. Illustrated with thirty plates. Philadelphia: Ed. Barrington and Geo. D. Haswell, 1846.

Although upwards of forty years have elapsed since the first appearance of this work, during which period dental surgery has made great advances, it still occupies a high place in the literature of this department of medicine.

The editor, in preparing it for publication, has made numerous and extensive additions, supplying such details of subsequent improvements in practice, as the present state of the science and art seemed to demand.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Minute Structure of the Lungs.*—Mr. Rainey, in an interesting communication to the Royal Medico-Chirurgical Society, gives an account of the minute anatomy of the lungs, of which the following summary includes the principal points of interest:

1. With respect to the bronchial tubes, these are, for the greater part of their course, cartilaginous; but that at a certain distance from the surface, the cartilaginous rings are lost, and the canal is continued by the lining membrane alone. Having arrived about one-eighth of an inch from the surface, this membrane also becomes deficient, and the air passages then appear to be formed solely by the air-cells between which they pass. They are then termed intercellular passages. The membrane of the bronchial tubes is supplied by a distinct set of blood-vessels, which at the abrupt termination of the membrane anastomose with those of the air cells. The intercellular passages are at first circular, and like the tubes of which they are a continuation, do not at first communicate with many air-cells; the communication, however, is very free towards the peripheral destination of the canal. A remarkable anatomical fact, announced by Mr. Rainey, is, that the mucous lining of the bronchial tube does not, as is generally supposed, continue along the intercellular spaces, and into the air-cells, a circumstance which, as he justly observes, sufficiently explains the different effects of inflammation of the tubes and of the air-cells; the latter, which are lined by fibro-cellular tissue, being accompanied by the deposition of fibrin instead of mucus.

2. The air-cells open upon the bronchial tubes and intercellular passages by well-defined circular apertures, surrounded by a ring of fibres, and a dense plexus of capillary vessels. These vessels, in the lungs of mammals, run between two layers of the pulmonary membrane, so that there is but one vascular network between two given cells, and the blood is aerated on each side. In the lung of the frog, serpent, &c., there are two plexuses between any two cells. Mr. Rainey concludes, in opposition to Dr. Addison, (of Malvern,) that the fœtus, prior to the act of respiration, possesses fully-formed air-cells, which are also surrounded by capillary plexuses.—*Prov. Med. and Surg. Journal*, Jan. 26, 1848.

2. *Use of Glisson's Capsule.*—M. Petrequin suggests what seems a probable explanation of at least part of the purpose served by that continuation of the *tunica propria* of the liver to which the name of Glisson's capsule is applied, and which accompanies the branches of the portal vein, hepatic artery, and biliary duct, along their ramifications through the substance of the liver. He regards it as destined to facilitate the portal circulation, explaining his view in the following manner:—The liver is a compact organ, not readily admitting of being distended; there is no heart to impel the blood through the vena portæ, nor are there any valves to

sustain the column of blood in it; the capacity of this vein is also greater than that of the mesenteric artery to which it corresponds, and it is one of the vessels whose calibre is most variable, because, from its relation to the digestive organs, it must admit of dilatation when fluids are absorbed, and be enabled to contract when those fluids have passed off. These various obstacles to the portal circulation are counteracted, and the power of accommodating the capacity of the vessel to its contents is insured, by its running in a fibrous sheath, and being quite independent of the tissue of the liver; it can dilate or contract as the quantity of fluid traversing it increases or diminishes, and it can also contract so as to press on the blood it contains, and thus favour its circulation.—*Ibid.*, from *British and Foreign Med. Review.*

3. *Nutrition.*—Professor Paget has elucidated, in a very striking manner, the meaning of an hypothesis of Treviranus, suggesting "that each organ, while it nourishes itself, serves the purpose of an excretion, in that it removes from the blood certain constituents, which leave that fluid in a state more fit for the nutrition of other parts." And in the same degree, it is thought probable "that the consequence of the existence of certain materials in the blood is the formation of an organ, or structure, into the composition of which those materials may enter. For example, when one kidney is destroyed the other often becomes larger, does double work, as it is said, and the patient does not suffer from retention of urine in the blood. The full meaning of which seems to be, that as the principal constituents of the urine are ready formed in the blood, and are separated through the kidneys by the agency—that is, by the development, growth, and discharge—of the renal cells, it will happen that if one kidney be destroyed, there must, for a time, be an excess of the constituents of the urine in the blood; for since the separation of urine is not mere filtration, the other kidney cannot at once, and without change of size, discharge a double quantity. The kidney therefore grows; more renal cells develop, and discharge, and renew themselves; in short, the existence of the constituents of urine in the blood induces the formation of renal substance." By combining these two hypotheses, "firstly, that the blood is definitely altered by the abstraction of every material necessary for the nutrition of a part; and, secondly, that the existence of certain materials in the blood induces, or at least favours, the formation of corresponding tissues, it seems to follow, as a reasonable hypothesis, that the order in which the several organs of the body appear in the course of development, while it is conformable with the law of imitation of the parent, and with the law of progressive ascent towards the higher state of being, is yet (at least in part, and this part more directly) the result of necessary and successive consequences; the formation of one organ, or series of organs, inducing or supplying a necessary condition for the formation of others, by the changes successively produced in the composition of the nutritive material from which they all take their nutriment. In other words, the development of each organ or system, co-operating with the self-development of the blood, prepares it for the formation of some other organ or system, till, by the successive changes thus produced and by its own development and increase, the blood is fitted for the maintenance and nutrition of the completed organism." Mr. Paget finds instances of this complemental relation of organs and tissues, in the coincident development of hair on certain parts of the body, and of the genital apparatus. Parallel to which is the perfection of plumage at the period of full activity of the reproductive organs of the bird, particularly the male. And he remarks that as in man, when the development of the genital organs is prevented, that of the beard and all the other sexual characters is, as a consequence, hindered; so in birds, when the breeding season ends, and the sexual organs pass into their periodic atrophy, the plumage assumes paler and more sober colours, characteristic of barrenness. A similar relation is well known in the development of the antlers of the deer and the reproductive organs; and Mr. Paget, in explanation of this connection with development having no apparent purpose in the generation of the species, observes, "that where two or more organs are thus manifestly connected in nutrition, and not connected in any external office, their connection is because one is partly formed of materials left in the blood by the formation of the other; so that each, at the same time that it performs its own proper and external office,

maintains the blood in the condition most favourable to the formation of the other." Lastly, he suggests that in this theory may be found the meaning of the commensurate development of many other organs which in their function appear unconnected; such are the thymus gland and the air breathing organs, the thyroid gland and the brain, the spleen and pancreas, and the embryo and mammary gland of the parent.—*Ranking's Abstract*, vol. vi., from *Paget's Lectures, delivered at Royal Coll. Surg.*, 1847.

4. *Contractility of Arteries.*—E. and E. H. WEBER have succeeded in proving, by galvanic agency, the muscular nature of arteries whose calibre is small, but they obtained no satisfactory evidence, from their experiments, of contraction in larger ones. They have employed the rotating electro-galvanic apparatus, and have subjected the vessels of the mesentery of frogs to its influence. Arteries of the chosen size, i. e. 1-7th to 1-17th of a line diameter, so acted upon, did not on the instant answer to the irritation, but soon after contracted to a third of their previous diameter; if the irritation were continued, the artery progressively diminished, until the stream of blood-corpuscles was but a single row, or even became interrupted. This narrowing was limited in extent by the range of electric irritation, and produced on the stream of blood a marked acceleration, according to the law of hydraulics observed in diminished tubes. The contraction is only temporary, and the arteries recover completely their normal size and condition, being liable to renewed contraction on a fresh application of the electricity. Capillary vessels, 1-96th of a line in diameter, or thereabouts, exposed to electric stimulus, evinced no contractility, neither were they dilated, but coagulation of the blood was observed to take place. A weak electric stimulus produces, after an interval, a sensible retardation of the stream of blood, which seems to be due to the coherence of the blood-corpuscles, or adherence to the walls of the vessel, with the greater friction of their movement; and this retardation speedily ends in a total stop, whilst the newly-arriving blood-corpuscles accumulate, and fill up the vessel until collateral passages relieve the pressure. After a time the blood-corpuscles disperse once again, and the circulation is restored. A similar retardation and impeding of the circulation are occasioned in minute veins by electric agency, but in these it does not take place with the same facility as in the arterial capillaries, apparently because the stream is less rapid.—*Ranking's Abstract*, vol. vi., from *Müller's Archives*, 1847, No. 2.

5. *On the Nucleus of the Animal and Vegetable Cell.*—By Dr. MARTIN BARRY—Schleiden ascribed to the nucleus of the vegetable elementary cell the power of forming around it a membrane which became the cell-membrane or cell-wall; hence he gave to the nucleus the name of cytoblast. But with the formation of the cell-wall he conceived the function of the nucleus to cease; and thought that, being no longer required, it became inert in the cell-wall, or in some instances was absorbed. The nucleus itself was, in the first instance, produced by a similar mode of development, being deposited around a smaller body, which sometimes remained as a permanent nucleolus. The same view of the formation of cells was advocated in relation to the animal tissues by Schwann, Muller, Henle, and Valentin, the last of whom thus describes the process:—"In a fluid there are precipitated granules, which are nucleoli; around the nucleolus there is deposited a finely granular substance, by which there is formed the nucleus (cytoblast); and around the nucleus there is formed the membrane of the cell. The principle of formation of the nucleus around the nucleolus, is essentially the same as that of the cell around the nucleus."

To borrow the language of the botanist, the preceding physiologists consider the vegetable animal cell to have an "exogenous" development; the primitive nucleolus remaining *central*, and the subsequent formations being deposited layer by layer *around* the nucleolus, which, so long as it remains at all, retains the same relative position. This view Dr. Barry conceives to be incorrect, and propounds a theory of cell-development which corresponds much more closely with the type of structure called in botany "endogenous." Dr. Barry describes the development of the cell as being analogous to that of the mammiferous ovum. According to him the original granule or nucleolus gradually enlarges, and in time develops *within it* a second body, which, appearing at first as a pellucid point, comes to occupy the position and assume the form of the original nucleolus, which has now expanded into a nucleus (the cytoblast of Schleiden). Thus the primitive formation becomes peripheral, while the secondary nucleolus occupies the central position. The same law is pursued in the further development. The nucleus or cytoblast becomes a cell, and the secondary nucleolus becomes in its turn a nucleus by the development *within it* of a tertiary formation, which assumes the position and functions of the nucleolus. In the complete cell thus formed there are three parts—1st, the cell-membrane, or cell-wall of Schleiden, which is the original or *primary* nucleolus; 2d, the nucleus (cytoblast of Schleiden), which is the *secondary* nucleolus; 3d, the true nucleolus of Schleiden, which is the *tertiary* or last developed nucleolus of Dr. Barry.

According to this theory, therefore, cells are developed *endogenously;* the first formed parts being always found at the periphery, and the last or most recent at the centre. The central parts by renewed developments are expanded and pushed outwards; and thus the nucleolus becomes a cytoblast, and the cytoblast becomes a cell.

The development may, however, proceed according to the same law, beyond the stage which corresponds to the complete cell of Schleiden; its further stages becoming complicated by the subdivision of the nucleus. According to Dr. Barry, this body sends out processes into the surrounding substance, assuming in this way a stellated form. As development proceeds, each of these projecting portions of the nucleus becomes a separate centre, from which new cytoblasts are generated as already described; the central original nucleolus undergoing also a similar development. In this way the original cell may become a body of the utmost complexity of structure; the nuclei being subdivided into new centres or nucleoli, and these undergoing endogenous development into nuclei and cells.

The mode of fissiparous multiplication thus ascribed to the nucleus, was first seen by Dr. Barry in the germinal spot of the ovum, which he considers to be the type of all cell-development. He has, however, traced the same process in many elementary cell-formations, including blood-corpuscles, pus and mucus globules, and epithelium cells.

Dr. Barry gives to the pellucid point, which is the first stage of Schleiden's nucleolus, the name of hyaline. This hyaline is at first quite structureless, and even after it has enlarged considerably, presents no distinct membranous envelope. Before the formation of the secondary nucleolus, however, it becomes surrounded by a number of extremely minute granules, which appear to enter into the formation of its envelope. In like manner the secondary nucleolus is at first formed without a membrane, but afterwards acquires one by the coalescence of a layer of superimposed granules. The minute granules which thus enter into the formation of the cell-wall, are considered by Dr. Barry to arise from the hyaline, and to be themselves the result of an exceedingly minute process of cell-development. This structure he has described and figured in the ovisac.

It only remains to say that Dr. Barry conceives this mode of cell-formation to be universal; and that, in particular, he believes the blood-corpuscles to arise in the ovum, and at all subsequent periods in this manner. Furthermore, he refers to his former memoir (Philosophical Transactions, 1841), in which he stated, that all the tissues were formed from corpuscles, having the same appearance as the corpuscles of the blood, and which he believes to be actually blood-corpuscles which had been in the circulation. Into the proof of this theory, and the other illustrations which he gives of his views of cell-formation, we have not space to enter at present.—*Monthly Journ., and Retrospect of the Med. Sci.,* Feb. 1848, from *Edin. New Philos. Journ.,* Oct. 1847.

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6. *On the Functions of the Spleen, and Constitution of Venous Blood in different Animals.* By M. Beclard.—It is, from many circumstances, probable that the spleen is an organ intended, in some way or other, to operate upon the blood which passes through it; and in order to ascertain whether any, or what changes, are produced by it, M. Beclard has performed a series of analyses of venous blood, the results of which he has here detailed, and which lead to conclusions of a very remarkable character. His experiments entirely disprove the opinion of Donné, that the spleen

is the organ by which the blood-globules are formed; as he has found that the blood of the splenic vein (previous to its junction with the vena portæ and veins of the stomach) contains a quantity of globules, inferior not merely to arterial, but even to the average of that contained in venous blood generally. On the other hand, the proportion of albumen is increased.

The examination of the blood of the vena portæ shows a very large proportion of globules, and a corresponding diminution of the albumen, as is clearly shown by the following table:—

	Venous Blood from Jugular Vein.	Arterial Blood.	Blood of the Splenic Vein.	Blood of the Vena Portæ.
Water, ...	778·9	750·6	746·3	702·3
Albumen, ...	79·4	89·5	124·8	70·6
Globules and Fibrin, .	141.72	159·9	128·9	227·1

The author has established the fact, that though the constitution of venous blood varies, that of the arterial blood is constant in every part of the arterial system.

M. Beclard is still engaged in the prosecution of these experiments; and his present communication appears to be merely the announcement of an extended investigation, which, should the first results be borne out, is likely to throw an important light on the functions of the abdominal organs.—*Monthly Journ. and Retrospect Med. Sci.*, Feb. 1848, from *Annales de Chemie et de Phys.*, Dec. 1847.

7. *Double Vagina and Uterus.*—Mr. John Birkett exhibited to the Pathological Society of London (Dec. 6) a specimen of double vagina and uterus from a woman, æt. 50, who had been married, but never bore children, and had died from pneumonia and pericarditis. The vagina was completely divided in the mesian line by a strong, dense, fibrous septum, extending from the external opening to the uterus. Thus two vaginæ existed: each vagina led to a distinct os uteri, both of which were small. The neck of the uterus was rather longer than usual; the body smaller. The uterus itself was nearly divided into two cavities by a septum in the mesian line. The ovaries, Fallopian tubes, and ligaments, were involved in one general adherent mass of old standing. The Fallopian tubes were pervious for some distance from the uterus.—*Lond. Med. Gaz.*, Dec. 1847.

MATERIA MEDICA AND PHARMACY.

8. *Properties and Test of the Purity of Chloroform.*—The following are given in the *Pharmaceutical Journal*, as the properties of pure chloroform, and as the test of its purity.

1. "That pure chloroform, applied to the skin or mucous membrane, produces simple redness, without cauterization or vesication. It acquires, however, caustic properties when mixed with a small quantity of absolute alcohol.

2. "That the chloroform used in medical practice, which has caused vesication of the lips or nostril, with irritation of the bronchial tubes, could not have been pure.

3. "That this chloroform contains a certain quantity of anhydrous alcohol. The presence of this liquid in chloroform was suspected by MM. Soubeiran and Gerdy, and it has been demonstrated by analysis. The alcohol may act by combining with and coagulating the albuminous fluids of the body, and thus giving rise to the local effects of irritation.

"Hence, before using chloroform vapour in surgical practice, it is indispensably necessary to ascertain whether it be pure. M. Mialhe finds that the following is a very delicate test of the presence of alcohol in chloroform:—Place some distilled water in a tube or glass, and drop on it a small quantity of chloroform. The grearer part sinks immediately to the bottom of the vessel, owing to its great density, (sp. gr. 1·48.) A small quantity floats by repulsion, but may be made to fall in small globules by agitation. If the chloroform be pure, it remains transparent at the bottom of the vessel; but if it contain only a small portion of alcohol, the globules acquire a milky opacity."—*Lancet*, Jan. 8, 1848.

9. *Carvacrol a Cure for Toothache.*—Dr. Bushnan in a notice in the *Med. Times*, (Jan. 8, 1848,) on the progress of German Medical Science, states that this article applied on a piece of cotton to a decayed tooth, gives immediate relief.

Carvacrol ($C^{26} H^{18} O^{2} = HOC^{26} H^{17} O$), according to Prof. Schweitzer, is formed by the action of potassa, iodine, or hydrated phosphoric acid, upon oleum carui, ol. thymi; and, according to Claus, by the action of iodine upon camphor. Schweitzer has shown that the product from camphor is the same as that obtained from the oil of caraway.

Preparation.—I. Ol. carui is to be distilled with hydrated phosphoric acid. The liquid that passes over is to be poured back into the retort until it no longer retains the smell of the oil of caraway. The carvacrol separates itself in the form of an oil from the phosphoric acid.

II. In the same way a saturated solution of iodine must be distilled with oil of caraway until no more hydriodic acid is formed. The red mass which remains in the retort must be operated upon by potash. The yellow solution is to be distilled. Carvene ($C^{10} H^{8}$) passes over, and the carvacrol remains. It is to be purified by redistillation.

III. Equal parts of camphor and iodine are to be rubbed together and distilled until no red vapour is given off. The black mass remaining in the retort contains carbon, resin, camphine, colophyne, iodine, and carvacrol; that in the receiver, camphine, colophene, carvacrol, and a little iodine and hydriodic acid, which, on standing, separates into two layers. The upper layer is to be distilled, and at 180° camphine passes over, while colophene and carvacrol remain. This is to be acted on by potash. The carvacrol may be obtained from the alkaline solution by the action of an acid and by distillation over purified lime.—(Claus).

Carvacrol is an oily liquid, very similar to creasote, with a very unpleasant smell and strong taste.

10. *On the Purgative Effects of Scammony, and of Resin of Scammony, compared with those of Resin of Jalap.*—Dr. A. Willemin has published in the *Archives Générales* (Aug. 1848), an account of some interesting experiments on this subject, instituted in the wards of M. Rayer. From these experiments, 210 in number, M. W. deduces the following conclusions:

1st. Aleppo scammony (of good quality), in a dose of 16 grains, usually procures three or four evacuations.

2d. There is no danger in raising the dose to ℈j or gr. xxiv; the purgative effect is not increased, and is often less than that produced by 16 grains.

3d. The administration of the medicine with an acid, or the use of an acid drank afterwards, has no apparent effect.

4th. The addition of an alkali does not render the action more energetic.

5th. The *resin of scammony*, in a dose of eight grains, produces about the same purgative effect as 16 grains of scammony. The administration of 16 grains, is followed by less active purgation, which diminishes still further on raising the dose to ℈j, or gr. xxiv.

6th. The resin of scammony is more liable to excite a sensation of heat in the stomach and about the anus, than that of jalap.

7th. The resin of scammony, in a dose of eight grains, is an excellent purgative. As we cannot foretell the amount of resin in the scammony of commerce, the resin itself is much to be preferred medicinally.

8th. The resin of jalap, in a dose of eight grains, purges as effectually as a similar quantity of resin of scammony.

11. *Muriate of Opium.*—Dr. J. G. Nichol gives the following formula for this pre-

paration, which, he says, he has been in the habit of using for the last ten years, and extols it as superior to any other preparation of opium:—

Take of the best powdered opium ℥j; muriatic acid ℥j; distilled water ℥xx. Mix. Shake the mixture very frequently every day, during fourteen days, then strain and filter. The dose is from twenty to forty drops.—*Pharm. Journal.*

MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

12. *Naphtha in Consumption.*—Dr. **Theophilus Thompson** made some remarks at the meeting of the Medical Society of London, (Dec. 20, 1847,) on the use of naphtha in consumption. He had thought it his duty to ascertain, as far as lay in his power, the effects of this remedy at the Consumptive Hospital. With this view, having taken proper precautions to get the agent pure, and to give it as described by its admirers, he administered it in several cases. The conclusions arrived at by these experiments were as follows:—In the third stage of consumption it did positive mischief. In a few cases, when the bronchial tubes were affected, and there was much expectoration, it seemed to arrest the secretion to some extent, lessen the night perspiration, make the pulse fuller and slower, and somewhat relieve the cough; the appetite also improved. In all the stages of consumption, and under other circumstances in the disease, except those mentioned, the naphtha did positive harm. It had no effect whatever on the tubercular disease.

Dr. Golding Bird declared that there never was a greater delusion than to suppose that naphtha was a remedy for consumption. He had employed it, with all the care and caution recommended by its advocates, and he had never found it of service. The fact was simply this: the pyro-acetic spirit acted in chronic bronchitis just as did other hydro-carbonates, and no better. The tar-water of Bishop Berkeley had a great reputation in its day, as had also the Barbadoes tar; the fetid gums belonged to the same class, and they all acted as stimulating expectorants to the bronchial membrane. In phthisis, when a cavity was present, much of the cough and expectoration depended on the condition of the bronchial membrane; and hence the origin of the good effects of this vaunted remedy. To say it cured or arrested consumption was a mere delusion. All practitioners must have observed that any new remedy, from the confidence excited in the patient, did good for a time, in chronic phthisis. Dr. Bird then showed the fallacy of the grounds on which naphtha had been established in temporary fame, and alluded to the singular circumstance, that its greatest, and certainly its most scientific, advocate, had died of consumption, his favourite remedy having been persevered in to the last.

Mr. Hird detailed the particulars of some cases of phthisis in which he had been induced to try the effects of the pyro-acetic spirit. In no case did he see any benefit from its use. It must not be supposed, however, that the supporters of naphtha employed this remedy solely; as extensive counter-irritation over the chest, iron, acetate of lead, and digitalis were employed at the same time, so as to make it difficult to determine which remedy really did good or harm.

Mr. A. Fisher related some cases of phthisis in which the remedy seemed to be of much service; but there appeared to be considerable obscurity in the diagnosis in these instances.

Dr. Willshire had given the remedy in a great number of cases of phthisis. It always did harm, and produced nausea and vertigo after having been administered for a period of a week or ten days. In one case of very doubtful character, it appeared to be of temporary service.—*Lancet*, Jan. 15, 1848.

13. *New Treatment of Coryza.*—M. **Deschamps** recommends snuffing up the nostrils every two hours, a solution of opium in water (10 centigrammes of the former, to 20 grammes of the latter), as an effectual cure for coryza. If resorted to at the commencement, the disease is at once suppressed. In a more advanced stage, the nasal secretion is suppressed after two insufflations; and if the inflammation

is more considerable, the secretion is suppressed, but the inflammation gradually ceases.—*Gazette des Hôpitaux*, Oct. 26, 1847.

14. *Use of Ice in Exhausting Diseases.*—Some interesting cases are quoted in a recent number of the *Revue Médico-Chirurgicale*, from a French journal, in which ice taken internally seemed to be of great service in reviving powers fast sinking. The writer employs it in very various diseased conditions, providing these manifest the signs of intense debility. The reaction it induces may prove curative in some cases, while in others, in which this is impossible, a marked temporary amelioration of the patient's state occurs. In the cases in question there is great atony and extenuation, and an extreme aversion to any food whatever, with or without a development of heat. A number of morbid states and organic lesions, having no other points in common, may induce this condition. Iced water does not succeed anything like so well as the administration of the ice in little lumps, which by requiring time for their solution, ensure its gradual introduction. These impart great tone to the system, and revive the inclination for food in a remarkable manner.—*Prov. Med. and Surg. Journal*, Jan. 26, 1848, from *Rev. Méd-Chir.*

15. *Enlarged Parotid cured by Tincture of Iodine.*—J. Morison has treated successfully, he says (*Lancet*, Jan. 8th), many cases of enlarged parotid with tincture of iodine. He paints the tumour with the tincture, and also gives it internally in doses of ten minims, night and morning, in cold water.

16. *Sulphurous Baths in Asthma.*—Several papers have appeared in the *Gazette Médicale*, by M. Courtin, on the use of sulphurous baths in asthma They refer to that form of asthma known as spasmodic, and where there is a dilatation and hypertrophy of the air-cells. The author agrees with M. Beau in viewing asthma as arising from the production of bronchial mucus by catarrh, or as a chronic capillary bronchitis. Although admitting nervous dyspnœa as occurring, in susceptible subjects, from moral impressions, &c., and in which all the symptoms of asthma, save dyspnœa, are absent, he would deny the existence of spasmodic asthma, arising from a spasmodic constriction of the bronchi, as advanced by Cullen; but still allows that asthma may have nervous complications. The term nervous may be applied to asthma with the same signification as diarrhœa is spoken of as spasmodic. "The vitality of the bronchial mucous membrane is modified, disorder of secretion established, and an abnormal secretion poured out; moral influences, cold, change of air, or of food. will exert, in such a case, an action such as is admitted in icterus and in diarrhœa, called spasmodic—in a word, in all the secretions."

M. Courtin next inquires, whether vesicular emphysema of the lung is a primary spontaneous affection, or a consequence of disease. He does not find an explanation of the symptoms of asthma in the morbid appearances found on dissection—viz., dilatation and hypertrophy of the air-vesicles; nor does he believe that the hypothetical loss of elasticity of those cells will explain their dilatation. The hypertrophy of their walls, without previous retention, without accumulation of their contents, is equally incomprehensible, and contrary to the law presiding over the development of hollow organs. An obstacle to the course of the air in the bronchi, must then be supposed to explain the anatomical characters of emphysema or asthma, and catarrh is present in every case. Asthma is, then, analogous with capillary bronchitis, and, like it, the consequence of obstacles to the free circulation of air in the bronchi, by reason of the effused mucus; and except the febrile state, and the rapidity of the latter, the physical signs are the same in the two affections.

Having thus glanced at his pathology, we will now give a brief account of the treatment M. Courtin proposes. He advises the use of sulphurous baths, made of sulphuret of potassium, dissolved in sulphuric or hydrochloric acid; five to ten ounces of the sulphuret being used for an ordinary bath. The temperature of the bath may vary from 77° to 87°. It should be taken fasting, and, in preference, in the morning; any chill should be most carefully avoided. A bath may be used every other day, or every day at the commencement of the treatment, and when the attack is severe. It must be noted, however, that the effect of the first baths is the production of a greater amount of dyspnœa, attributable to the moist air surrounding the patient, and to the greater pressure on the surface of the body. Sometimes, indeed, the first baths are insupportable beyond a few minutes; but by a little perseverance, the patient becomes used to them, and that so much the sooner on the occurrence of free expectoration. The author would attribute the beneficial influence of the baths to their stimulating action on the skin, their general calming property, and to a direct fumigation by the vapour. In the complications of asthma, recourse is had especially to emetics, sometimes to bleeding, and frequently to emollient cataplasms to the chest. His observations on the utility of sulphurous baths in alleviating asthma, are based, by M. Courtin, on twenty-three cases in which they have been employed. In thirteen, the greatest benefit resulted; in seven others, great amelioration; and in three only was little, or a merely passing relief, afforded; but the failure in these three instances will appear less notable, when it is stated that one of the patients had contraction of the aorta at its valves, and hypertrophy of the heart; and that another had incipient phthisis. Moreover, three of the seven but imperfectly relieved, had other chest diseases affecting them.

Other diseases of the bronchial mucous membrane, are described as rapidly cured by the remedy, and particularly common catarrh. Even in phthisis, M. Beau is said to have been successful with the sulphur-medicated baths.—*Lancet*, Jan. 29, 1848.

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17. *Acetate of Lead in Tympanites.*—Dr. Baddeley, of Chelmsford, mentions (*Lancet*, Jan. 8th) a case of temporary intestinal obstruction, with excessive lymphatic distension, in which the best effects followed the exhibition of the acetate of lead. Purgatives had failed to procure an evacuation. Vomiting supervened, with hiccup, and the coils of distended bowels could be felt through the abdomen. Feeling convinced that the symptoms depended upon a loss of tone in the muscular fibres of the alimentary canal, alum was ordered, with turpentine injections, and having failed, three grains of the acetate of lead, with one-sixth of a grain of morphia, were given every four hours. This was soon followed by the expulsion of large quantities of gas, and copious dejections. The hiccup and vomiting declined, and the man was soon convalescent.

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18. *A Remarkable case of Protracted Hæmoptysis, symptomatic of Primary Disease in the Stomach, succeeded by violent Epilepsy, and the recovery of Health.*—By Henry Burton, M. D.—(*Proceedings of Royal Med.-Chirurg. Soc.*, Jan. 11).—The history of the case offers a good example of the co-existence of severe gastric derangement, with constant headache. copious hæmoptysis, occurring at irregular intervals during four years and three-quarters, with rigid spasm of the lower extremities, followed by the restoration of good health, after the supervention of a series of violent epileptic fits, which quickly succeeded the disappearance of the pulmonary hemorrhage.

The author, after citing the opinion of M. Andral, relating to the influence exerted by different organs on the production of congestion in the brain, and also the opinion of Dr. Copland upon the importance of tracing "the origins and relations of sympathetic and symptomatic phenomena, with reference, not merely to diagnosis, but also to prognosis and treatment," proceeds to describe the case of an intelligent female, aged 18 years, of a spare habit, and rather under the usual height, who was admitted into St. Thomas' Hospital on the 5th of September, 1843.

She had then been ill with symptoms referrible to the chest and abdomen for two years and a quarter, and for two years the abdominal symptoms had been complicated with copious hæmoptysis, partial loss of voice, and an almost total want of power over the lower extremities. She had been confined to her bed during the greater part of her illness, and the abdominal pain had never entirely ceased; the hæmoptysis had recurred very frequently; the uterine functions had been always regularly performed; and, with the exception of the pulmonary hemorrhage, the patient had never experienced any habitual loss of blood. Copious hæmoptysis recurred seven times after admission in forty-one weeks. The patient returned home in June, 1844, in a much better state of health than she had experienced during the three years preceding, although not entirely cured, and was readmitted a second time in December, 1845, after an interval of a year and a half, with analogous symptoms of gastritis, co-existing with copious hæmoptysis.

After the second admission, copious hæmoptysis recurred three times in thirteen weeks, and slight hæmoptysis daily, until epilepsy supervened, when it ceased entirely.

The author reviews the circumstances which biassed his judgment in the early, as well as final treatment of the case, and endeavours to show that the hæmoptysis was dependent on a primary disease of the stomach, and not of the lungs; he notices the inefficacy of the ordinary remedies prescribed upon the supposition of the pulmonary origin of the hæmoptysis, and states it recurred until the irritability of the stomach, indicated by pain and frequent vomiting, was obviated by the use of mercurials; the urgency of the gastric symptoms then began to abate immediately, and the hæmoptysis ceased in twenty days after they were first prescribed.

He quotes the authority of Hoffmann and Mr. Rumsey in support of the opinion that gastric irritation may excite, through sympathy, copious hæmoptysis, independent of any other signs of phthisis, and that it does invariably lead to a deposition of pulmonary tubercles. He disapproves of the use of the acetate of lead in the treatment of symptomatic and copious hæmoptysis, and, in conclusion, expresses his opinion, that whenever the stomach is the seat of inflammatory action, associated with copious hæmoptysis, independent of other disease referrible to the thoracic viscera, the safest plan, in reference to treatment, is to consider the hemorrhage as a salutary act, by which the relative plethora in the lungs is relieved, and the first indication of cure to be the removal of the gastric disease.—*Lond. Med. Gaz.*, Jan.

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19. *Vomiting caused by Relaxation of the Abdominal Parietes, cured by a Bandage.*—M. Greppo reports the case of a woman, whose abdominal parietes were much relaxed in consequence of repeated pregnancy, and who was troubled by habitual vomiting, which resisted all the ordinary remedies. M. G. then applied an abdominal supporter bandage, which entirely relieved her. Whenever, however, she neglects to wear the supporter, the vomiting returns.—*Gaz. des Hôpitaux*, Oct. 10, from *Journ. de Méd. de Lyon.*

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20. *On Certain Forms of Headache* —Dr. P. Murphy in a paper on this subject read before the South London Medical Society, (Nov. 25th, 1847,) after alluding to the frequent occurrence of headache, stated that his intention was to confine himself to the consideration of those varieties originating from disease of bone, or its periosteal covering; from disease of fibrous structures, or rheumatism; from affections of the occipital nerves, or from deficiency or excess of blood within the cranium.

Periostitis of the cranium is scarcely met with unless after a mercurial course, the constitution being almost always scrofulous, and is generally found to invade either the coronal or parietal bones, which the author attributed to their less protected situation. The diagnosis of this form of headache, although not difficult, has been at times erroneous. The pain is severe, and confined to one or more spaces of the above-mentioned bones: is increased by warmth at night, by stimulating drinks, by exposure to cold and pressure; and a raised surface can be detected by the finger at the spot in pain: and, on inquiry it will be found that more than one course of mercury has been undergone. It occurs chiefly in men below forty years of age, and in the degraded class of females. The treatment should consist in the application of the Empl. c. Hydr., spread on thick leather, to the part, which both protects it from the cold, and removes the effusion of lymph. The exhibition of the iodide of potassium, combined with morphia and tinct. digitalis, is highly useful.

Another form of headache, the rheumatic or fibrous, not very common, is located in the tendon of the occipito-frontalis, the temporal aponeurosis, and tendinous insertions of muscles at the back of the head: it is usually preceded by rheumatism of other parts, and is increased by muscular movements. Warm coverings, when they can be applied, usually relieve it; also sinapisms; and, if the pain is very severe, leeches and cupping, and a few doses of calomel with opium, seldom fail to give relief. Gout may also attack the same parts, but may be diagnosed by our previous acquaintance with the habits of the patient. In both cases the pain is intermitting, changes its locality, is felt to be external, and the health is not affected.

The next form belongs to the class of spinal irritation, is very frequent, and met with exclusively in females during the menstrual periods, and attacks mostly the left side of the head; the pain is intermittent, shooting, and lancinating; may be fixed for days, and is most severe at the temple (when it is termed clavus hystericus), and next at the parietal protuberance and occiput: it proceeds from the sub-occipital nerve, and, if the exit of the nerve is pressed upon, pain more or less severe is complained of, extending along the whole course or at certain sites only of the nerve—as at the temple, nape of neck, parietal protuberance &c.: it is usually increased during the menstrual period, and is generally a complaint of unmarried females between the twenty-third and thirty-fifth years of life, and is indubitably a form of hysteria. The menses are usually profuse or difficult, the bladder irritable, and there are ill-defined painful sensations about the pelvis; other forms of neuralgia often co-exist. The irritation of the sub-occipital nerve must be traced to the ovaries, being only present where these exist, and while capable of fulfilling the function of menstruation; and our treatment must be primarily directed to remove any congestion or irritation of these peculiar organs, and secondarily to lessen the pain of the nerves. The author advises the daily use of hip-baths or sea-bathing, where possible; attention to prevent accumulations in the rectum; abstinence from stimulants; mental employment; inf. valerian c. digitalis, with pills of assafœtida; occasionally general or only local bleeding; and, when these fail, a gentle mercurial action, the cold bath being during the time omitted. As local means he recommends belladonna plasters, veratrine ointment, sinapisms, or blistering. Where, however, the patient is exhausted by leucorrhœa or profuse menstruation, with symptoms of chronic inflammation of the womb or ovaries, the treatment becomes more doubtful; but the author prefers the trial of a tonic treatment, and advises the exhibition of the valerianate of zinc and quinine, as especially efficacious, and the sulphate of iron in infusion of valerian when there are evidences of confirmed chlorosis. This headache may be termed the *nervous* headache: it also assumes another form, which may be termed the *cutaneous* headache, and is the hemicrania of our forefathers: it seems to be located in the integuments of one half—usually the left side—of the head, which is so exquisitely sensible as scarcely to bear the least touch of the finger, and the pain never passes the mesial line.

Another form of headache is that arising from deficiency of blood within the cranium, and coming on after hemorrhages, exhausting discharges, or any other debilitating causes: the best examples occur in chlorosis. It is increased by the erect, diminished by the recumbent posture; is not a very painful form, but is often attended with impaired vision: its cause may be traced to diminished muscular power of the heart, which palpitates on slight exertion: there is also dyspnœa, pale face, and other symptoms of a feeble circulation, with a sinking pain at the epigastrium, and craving appetite. If the true cause of this headache is mistaken, and depletion used, paralysis has been known to supervene, but if the debility be removed, the muscular power of the heart is easily increased; and the most useful remedies are, steel by itself or combined with quina, full diet, and the recumbent posture.

The last form of headache alluded to by the author arises from excess of blood, and may exist as a passive or congested, or as an active or inflammatory state. The former, arising from the various known causes of congestion, is diagnosed by the constant heavy pain at the anterior part of the head, increased by the recumbent posture, sense of chilliness, slow feeble pulse, tendency to vomiting, and pain in the lumbar region, caused by congestion of the spinal cord. It is a dangerous form of headache, and has in the depressing diseases proved in a few hours fatal, but in other cases has lasted weeks without much mischief. The treatment should be to induce reaction as soon as possible by the warm-bath or an emetic. The author deprecated the usual attempts to arrest vomiting during the invasion of fevers. If the headache persists, with hot skin, leeches to the inner nares will be found of value: applied to the temple, they debilitate without relieving this pain of head, and they are altogether inadmissible when this coexists with typhus or scarlatina. Blisters may also be applied, and diaphoresis produced by the usual means; cold applications to the head, the author considered useless, and even likely to increase congestion. Care was also requisite that mere congestion should not by the use of stimuli be forced into inflammation, which is the next stage if resolution or fatal termination does not take place. The author regarded idiopathic phrenitis as a most rare disease, and hydrocephalus acutus as congestion not inflammation. Phrenitis was well marked by the tensive pain increased on stooping, by the bright eye, hot skin, nausea, and vomiting, tendency to delirium, and occasional twitching of the muscles of the face; the most active antiphlogistic measures should be used.

There were other forms of headache easy of diagnosis, but of these the author would only mention the constant pain of head in children, with emaciation and want of sleep, and which diagnosed tubercles of the brain. In the headache of pregnant females referred to the centre of the head, and attended with a remarkably slow pulse, and in which, if bleeding is neglected, convulsions, abortion, and too often death, are apt to supervene; and lastly, the pain of the head occurring after a night's debauch, the cause of which, whether in the stomach or affected organ, the author considered not to have been sufficiently investigated.

The President inquired of the author his means of judging in cases of headache whether the treatment should be depletory or stimulating, as in his own practice he had at times found it extremely difficult to decide, and was often obliged to try, as it were, a tentative treatment.

Dr. P. Murphy thought we should not often be led astray if attention was paid to certain points. If a patient complained of the pain of head coming on and increasing after getting up in the morning, or assuming the erect position, and relieved on resuming the horizontal; if troubled with dimness of sight, faintness, perspirations, palpitations on exertion, cramps of legs, depression of spirits, frightful dreams, &c., he concluded a tonic treatment would be useful; headache from congestion is, moreover, a rare disease. In answer to Mr. Wright, his usual practice in clavus hystericus was to commence with tonics, which usually effected a cure. Still in some cases he resorted to cupping at the back of the neck with the greatest benefit, after the former plan had failed. In cases of young females where signs of congestion about the womb existed, leeches to the groins were often useful.

Dr. Silvester agreed in the value of Dr. Murphy's diagnostic symptoms, and alluded to the existence of the venous bruit, which, when present, always indicated an anæmial condition of system, and contraindicated depletion, but is benefitted by a tonic plan; as a general rule, he thought it wiser not to deplete in headache. He did not agree with the author that the pain of syphilitic headache occurred generally at the front or most exposed portions of bone; he thought it was more general about the muscular insertions at the back of the neck, and in parts well covered with muscles; there appeared to be an electric attraction in the poison for certain parts of bones.—*London Med. Gaz.*, Dec. 1847.

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21. *On the Employment of Large Doses of Tartar Emetic in the Treatment of Pneumonia, especially in Children.*—Dr. Herard observes, that although it is now universally allowed that doses of tartar emetic, which toxicologists heretofore pronounced poisonous, may be administered with safety, yet the greatest discrepancy of opinion prevails as to the amount of benefit derivable from these, notwithstanding the question has received so much illustration from very able writers. Having had the opportunity of witnessing the treatment of pneumonia by tartar emetic, at the Hôtel-Dieu by M. Sandras, and at the Hôspice des Enfans by MM. Baudelocque and Blache, and this in a great number of cases, he believes that the results may be advantageously published, especially as the antimony was the only remedy employed. He does not agree with those who consider that because we have so powerful a therapeutical agent as bleeding, inquiries like these are superfluous; for not only is it desirable to possess more than one efficacious means, especially if their conjoined use is found to diminish the chance of death and hasten convalescence; but there are cases in which bleeding cannot be performed without danger, as in ataxic pneumonia, particularly that of drunkards, and in pneumonia which manifests itself in persons already exhausted by prior

diseases, or by being surrounded with anti-hygienic circumstances. Children, too, at least those who are found in hospitals, ill bear blood-letting even in its mildest form.

Dose and mode of administration. In the adult, the dose has been rapidly raised from five or six to ten grains, but never carried beyond this; while in children, commencing with one and a half or two grains, it has rarely reached five grains. It has always been administered in a julep, giving a spoonful or two every hour or every second hour, suspending it for two or three hours after meals, and preventing the patient drinking too abundantly of ptisans while taking it. With such precautions the medicine becomes easily tolerated, the great error of practitioners being the administering it in too large a quantity of fluid. Moreover, a small proportion of syrup of poppies or gummy extract of opium is always added to the julep.

Action on the economy. 1. *On the alimentary canal.* The author's investigations in nowise confirm the assertions of those, who state that inflammation of the bucco-pharyngeal mucous membrane is a common result of the employment of large doses of antimony. In four or five cases only out of sixty in which these were given did he meet with a slight aphthous ulceration, apparently resulting from the child's retaining the julep in the mouth before swallowing it. In seven only of thirty-one infants did the tartar emetic produce repeated vomiting and purging; in twelve the tolerance became established by the second day; while in the rest it was observed from the beginning. As a general rule, tolerance is more rapidly and durably established as regards the stomach than the intestines. Diarrhœa is, however, seldom increased by the antimony, and in some cases obstinate constipation follows its use. When tolerance is of somewhat difficult establishment, it seems to be more readily brought about by increasing the dose and the frequency of administration, than by a contrary proceeding. After the fever has subsided and the medicine is only continued because of the persistence of some local symptom, tolerance is still maintained. Some patients even take it at their meals, and in others it seems to excite the appetite.

2. *Circulation.* All observers agree that antimony exerts a marked effect in diminishing the number of the pulse. This, in the adult, rapidly falls from 105 to 80, 70, 60, or even 45. In the child, the diminution is less marked and less permanent, the pulse still retaining somewhat of the oscillatory character proper to the time of life. This effect upon the pulse cannot be said to result simply from the ameliorated state of the patient, since it is observed the very next day after giving the antimony, and during the existence of very grave pulmonic lesions ascertainable by the stethoscope. More than once a pulse which had descended to 50 has risen to 70 on discontinuing the antimony, again to fall upon its resumption. This effect upon the pulse is usually more marked in proportion to the ease with which tolerance is established. Simultaneously with the diminution of the number of the pulse there is sometimes, but not always, an enfeeblement of the arterial and cardiac pulsations; but the intermissions and irregularities mentioned by Trousseau have not been observed by the author. The effect upon the pulse is sometimes long in disappearing, this continuing slow for several days after the suspension of the medicine.

3. *Respiration.* This, as well as the pulse, has almost always been found slower than natural; but its condition is much more difficult of exact appreciation, especially in the child. It is best examined during sleep, and then is found sometimes to have become affected even by the second dose.

4. *Secretions.* Transpiration has not seemed either in the adult or child to be increased by large doses of antimony; nor has the increased secretion of urine, noted by some authors, been observed.

Mode of action. Many excellent observers explain the curative agency of antimony in pneumonia by the powerful revulsion it produces upon the alimentary canal; and M. Chomel attributes some of the advantage to the mechanical effect which the repeated vomitings exert in disgorging the lungs. But if these explanations are correct, the medicine should be given in smaller doses, for these exert a far more powerful effect upon the alimentary canal than the larger ones; and every emetico-cathartic medicine might be expected to operate as beneficially. In fact, the most marked benefit is derived from the use of antimony, just in those cases in which its complete toleration prevents any effect being produced upon the stomach or intestines. According to others, it determines towards the skin the morbid material which had become concentrated upon the internal organs; but the slight amount of increased transpiration ill accords with this explanation.

The rapid and marked depression of the circulation and respiration has been differently explained. Some, as Mialhe, have seen in it a chemical action by which the oxidizing power of the lungs upon the blood becomes diminished; while others, as Trousseau, believe that the antimony admitted into the circulation acts directly through the nervous system upon the heart and inspiratory muscles. The lung consequently receives in a given time a less quantity of blood, and has, as an instrument of hæmatosis, less blood to elaborate; and it is to this repose of the diseased organ that we may refer the resolution of the disease. To this it may be objected, that antimony is as efficacious in some other inflammations, as rheumatism. The author of the present paper is not disposed to add to these hypotheses; but observes that, however explained, the diminution of the number of the pulse is, in some measure, the index of the beneficial effort of the remedy. When this is marked and rapid, a cure is almost always certain.

Therapeutical effects. The antimony, in the present series of observations, was administered to nine adults and thirty-one children. Of the former, one patient, admitted in an advanced stage of the disease, died; and the rest were completely cured. Of the children, seven died, two falling victims to tubercular pneumonia. In the other five, lobular pneumonia was very extensive; and five in thirty-one is a very favourable proportion in a disease so fatal as is the pneumonia of young children in hospital. Lobular pneumonia is far less amenable to tartar emetic than the lobar; and those cases of broncho-pneumonia, as M. Guersent terms them, occurring in children under two years of age, are generally far more efficaciously treated by emetics than by antimony given in contra-stimulant doses. For the same reason, probably, the Rasorian method is less successful in aged persons than in the adult; for it is well known that at this period of life pneumonia is complicated with bronchitis, and the characteristic tubular *souffle* is often absent. So, also, in pneumonia succeeding to bronchitis, M. Sandras has found antimony far less efficacious than in cases of pure pneumonia. The most remarkable fact among the present cases was the rapid disappearance of the bronchial *souffle*, and its replacement by crepitant or sub-crepitant *râles*. Bleeding itself does not produce so rapid a passage from the second to the first stage of the disease. "Frequently on the day of commencing the antimony, bronchial respiration, with bronchophony and resonance of the cough over the half of a lung, were ascertained; and the next day *râles*, more or less fine, might be heard over this entire space. Had this phenomenon been met with only once or twice, we should have explained it by the undoubted changeableness of the stethoscopic signs in childhood; but the result was obtained in so many children, that it would have been impossible not to have referred it to the antimony, if even it had not been equally exhibited in the adult." The crepitant *râle*, on the other hand, persists with remarkable tenacity, and, becoming assimilated in character to the large, moist, sub-crepitant *râles* of chronic or subacute bronchitis, may extend far into convalescence, every other sign of returning health being present. The rapidity with which convalescence takes place is, indeed, one of the most remarkable and advantageous results of the use of antimony. It can hardly be said to exist, so rapidly does health return, giving to this method of treatment an infinite advantage over blood-letting in this respect.

Notwithstanding his conviction of its great efficacy, the author would not recommend tartar emetic as an exclusive remedy, believing, as a general rule, that the disease in adults is most advantageously treated by combining it with venesection. It enables us to do with fewer blood-lettings, while these favour its absorption. But, to render it of service, practitioners must be convinced of its therapeutical importance, and prescribe it from the commencement, not as a mere accessory, but as an heroic remedy. In children *above two years of age*, it should be regarded almost as an exclusive medication: although, in exceptional cases, one or two emissions of blood or a blister may be required. This last sometimes, however, often proves a dangerous remedy in hospitals.—*Brit. and Foreign Med.-Chirurg. Review*, Jan. 1848, from *L'Union Médicale*, Nos. 127–131.

[Connected with the above observations by Dr. Herard, we refer to the very interesting paper by Dr. Peebles, in the original department of this number, and would particularly call attention to the injurious effects observed by him from the use of tartar emetic. In our experience, whilst we have found this article most efficient in controlling pneumonic inflammation, we have seen it produce, in some cases, especially in young children, and in aged persons, very unmanageable irritation of the stomach, and occasionally profuse serous diarrhœa generally difficult to control, and which in some cases speedily prostrated the patient.]

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22. *On the Internal use of Nitrate of Silver in Obstinate Diarrhœa and Dysentery.* By Thomas Aiken, Esq. The author of this communication remarks, that the topical application of the nitrate of silver to inflamed or ulcerated mucous surfaces is confessedly a most efficient mode of treating such cases. The knowledge of this fact may have induced physicians to employ the same remedy internally against disease invading the mucous surface of the hollow viscera. Accordingly, we find that ample testimony is afforded to the efficacy of the nitrate of silver in certain morbid conditions of the mucous coat of the stomach; but no English writer, Copland excepted (*Dictionary of Medicine*), sanctions its employment as a therapeutic agent in morbid conditions of the mucous surface of the intestinal tube. The author's object in the present communication is to adduce such testimony in favour of its sanative power in these affections as may stimulate further inquiry into the action of this salt in certain obstinate forms of diarrhœa and dysentery, which occasionally resist the action of the most esteemed remedies wielded in the ablest manner.

Boudin (*Gazette Méd.*, No. 51, 1836), physician to the Military Hospital at Marseilles, treated fifty cases of typhoid fever (dothinenteritis), in most of which severe diarrhœa was the most prominent feature, with the nitrate of silver thus: When the lower portion of the intestinal tract was presumed to be the seat of ulceration, enemata, containing from one to three grains, dissolved in distilled water, were administered. In most cases one enema sufficed, the symptoms undergoing speedy amelioration. In other cases the remedy was given by the mouth, in half-grain doses every half hour, [?] formed into pills with gum tragacanth, or starch, until from two to four grains were thus taken. In some instances these two modes of treatment were combined; the results were that only two of the fifty cases succumbed. Examination showed "many ulcers" on the mucous membrane in a case of incipient cicatrization—"*en voie de cicitrisation.*" There was evidence of the solution administered per rectum having passed the ileo-cæcal valve, and producing effects on the lower portion of the ileum precisely similar to those resulting from its action on the surface of the colon.

Kalt confirms Boudin's statement, having treated twenty-two cases of dothinenteritis with the nitrate of silver. Of these one died. He gave it in mixture (grs. ij to vj in decoct. salep. oz. vj); a tablespoonful of which was taken every half hour, or hour, according to circumstances.

Hirsch of Königsberg (*Hufeland's Journal*) found the nitrate of silver to succeed in obstinate cases of diarrhœa on the failure of ordinary remedies. It proved specially useful in the diarrhœa of newly-weaned infants. In "the advanced stage of such cases, when emaciation was extreme, the dejections being frequent, fetid, and consisting of a variously coloured, sometimes greenish, or bloody mucus, and wanting altogether the fecal character. When aphthous ulceration pervaded the mouth, and when prostration was extreme, the action of the nitrate was brilliant." He gave it to children thus:—℞ Argent. nitrat. crystall. gr. ¼; aquæ destill. ℥ij; gum mimosæ, ℈ij; sacch. albi, ʒij; Misce. Ft. mist.

A teaspoonful of this mixture was given every two hours, and an enema, containing a quarter grain of the salt, with mucilage and a little opium, was administered. The good effects of this treatment were occasionally visible in a few hours, sometimes not until the second day. He pronounces it a specific in the diarrhœa of infants. He found it almost equally efficacious in severe forms of diarrhœa and dysentery occurring in adults. He administered it to the latter in pills, in doses varying from one-twelfth to one-twentieth of a grain every two hours. For this purpose he recommends liquorice powder as preferable to the vegetable extracts which affect its decomposition. He also gave enemata, containing half a grain or a grain, with mucilage and opium.

Canstatt also extols the nitrate of silver as prescribed by Hirsch in the diarrhœa ablactatorum.

Since the author became acquainted with Hirsch's observations, opportunity presented for testing the powers of the nitrate of silver in a severe case of diarrhœa occurring in a child of a year old. Vomiting and purging set in, and continued with almost unabated intensity for five days. The stomach at length retained fluids in small quantities, but the purging continued. Chalk mixture, kino, opium, and acetate of lead were tried, and all, with the exception of the last, seemed to increase the irritation. The dejections were frequent, greenish, sometimes bloody, and very fetid. On the sixth day prostration was very great; there was a tendency to stupor, and quantities of greenish mucus were voided. Under these circumstances he gave the mixture as prescribed by Hirsch. The first dose seemed to increase the discharges; however, in about six hours, the character of the dejections were improved, they became feculent, and every symptom underwent a corresponding improvement.

Should the foregoing observations induce practitioners in this country to subject the action of the nitrate of silver in diseases of the mucous surface of the intestines to a more extensive trial, they may arrive at results confirmatory of those already obtained by the authorities which the author has quoted, and thereby extend the application of an agent of great therapeutic energy to forms of disease occasionally so intractable as to baffle the powers of ordinary remedies.

[The advantage of the nitrate of silver in the diarrhœa of infants, of which we have had considerable experience, is also acknowledged by Bouchart (*Manuel Pratique des Nouveau-nés*) and by Trousseau. We have given it frequently, and with much benefit also, in the "irritable" bowels of the adult. We generally prefer to exhibit it in solution, more especially in children, since, if given in pill or powder, we have no guarantee that it will not, by suddenly dissolving, exert all its effects, which, in that case, may be too powerful, upon a circumscribed portion of the mucous membrane. This is a point which is not sufficiently attended to in prescribing the nitrate of silver for gastrodynia, and sufficiently accounts for the diversity of opinion respecting its benefit in this complaint. It may be readily conceived that it makes all the difference whether half a grain of solid nitrate of silver lies in a corner of the stomach and dissolves, or whether originally in solution its action is distributed throughout the entire irritable mucous membrane.]—*Ranking's Abstract*, Vol. VI., from *Dub. Med. Press*, Sept. 29th, 1847.

SURGICAL PATHOLOGY AND THERAPEUTICS AND OPERATIVE SURGERY.

23. *Amputation of the Thigh—Secondary Hemorrhage—Ligature of Femoral Artery—Cure.* M. Robert amputated the thigh of a man at the inferior third, for a severe disease of the knee joint. The stump was healing favourably, when on the 15th day, an abundant hemorrhage at the back part of the wound occurred, which was arrested by firm compression. But on the twenty-second and twenty-third days, more profuse hemorrhage took place, which much weakened the patient. It was impossible at this time to seek the small arteries on a surface covered with numerous granulations; or to arrest the hemorrhage by cauterization with the hot iron, or to apply sufficient pressure for that purpose; and yet the patient was in extreme jeopardy. M. Robert was led to believe that the blood came from the branches of the profunda femoris, and he therefore determined to tie the femoral artery above the origin of this branch. This he accomplished; the hemorrhage was at once arrested and the patient entirely recovered.—*Gaz. des Hôpitaux.*

24. *Fissure of the Anus.*—M. Maisonneuve, at a meeting of the Surgical Society of Paris, gave an account of an operation for fissure of the anus, not generally

employed; which was first described by M. Recamier, and with the most satisfactory results. This disease, first described by Boyer, consists in spasm of the sphincter ani, and this spasm, it is the aim of M. Recamier to destroy by forcible distension. With this view he introduces two fingers into the rectum, stretches the anus by drawing the fingers in opposite directions, and thus is able to introduce his whole hand in the rectum. He then closes his hand, and draws his fist thus closed through the anus. M. Recamier has cured by this method all the cases in which he has employed it. A short time since, a patient was about being operated on by incision, when M. Recamier was called in consultation; he resorted to his method just described, and the cure was instantly accomplished. M. Maisonneuve, who was astounded at the marvellous results of M. Recamier's treatment, has since employed no other, and since he has etherized his patients, the operation is accomplished without pain. Among the great number of cases he has observed, he has not witnessed any ill effects, or a single relapse.—*Gazette des Hôpitaux*, Oct. 2, 1847.

25. *Fistula in ano cured by Injection of Iodine.*—Dr. Van Camp has communicated to the Society of Medicine of Anvers, a method of curing fistula in ano without operation, by means of injections of iodine. A workman, aged 24, had had an enormous abscess at the anus, which became fistulous, its inner opening being very high up in the gut. Wishing to avoid operating in the case, a solution of nitrate of silver was tried as an injection, but it failed to do any service, and recourse was then had to an injection of equal parts of tincture of iodine and water, which was thrown into the fistulous cavity twice a day for five days. The first injections were attended with severe pain, and when the inflammation produced by it was considered sufficient, the proceedings were suspended for three days; they were then renewed, as a little fecal matter was discharged from the wound, but the cavity had diminished to an inch in height, and by the sixteenth day the cure was complete.—*Journ. de Med. Prat.*

26. *Instrument for dilating Stricture of the Œsophagus*—M. Baillarger exhibited at one of the meetings of the Medical Society of Paris, an instrument for dilating strictures of the œsophagus. This instrument consists of an œsophagus sound, attached to the extremity of which is a sac, which may be expanded either with air or by the injection of water, after being introduced beyond the stricture. This sound is small, and is introduced through the nostril, and allowed to remain a longer or shorter time. Dilatation is effected by drawing the instrument upwards, by which the stricture is slowly dilated from below. This instrument had been applied morning and evening for eight days on a patient of M. Hervey de Chégroin at the Hospital Necker.—*Gaz. des Hôpitaux*, March 30, 1847.

27. *Case of Laryngitis, accompanied by the formation of false membrane in the Trachea and Bronchi, in which Tracheotomy was successfully performed.*. By T. A. Barker, M. D., (*Proceedings of Royal Med.-Chirurg. Soc.*, Dec. 11, 1847).—A woman, aged twenty-two, four months pregnant, after delicate health, and symptoms of commencing phthisis for nine months, and pain on deglutition for three months, was admitted into St. Thomas's Hospital with chronic laryngitis, and signs of tubercles, in an early stage, at the commencement of January, 1847. In a few days the symptoms became urgent, indicating the necessity of immediately opening the trachea. The operation was performed by Mr. B. Travers, junior, and the woman was nearly asphyxiated before it was completed, in consequence of a false membrane formed in the trachea, where the opening was made, blocking up the tube below the opening, having, probably, been forced downwards by the scalpel. Five days after the operation, there was extensive hemorrhage from the wound, and, together with the blood, a large quantity of fibrinous matter, evidently casts of bronchial tubes, was expectorated. The wound gradually closed, and there was no return of dyspnœa; but as the tubercular disease in the lung advanced, there was incessant cough, and the stomach became very irritable. Six weeks after the operation, the patient died, exhausted. The mucous membrane of the larynx and upper part of the trachea was completely destroyed, and both lungs, especially the right, were thickly studded with tubercles in an early stage.

As life was prolonged for six weeks, the death was not ultimately caused by obstruction in the larynx; the author considered this a successful operation, though performed under unfavourable circumstances. There was ulceration of the trachea at the part where the opening was made, which prevented the use of a trachea tube, on account of the irritation it excited; there was false membrane both in the trachea and bronchi; there were tubercles in the lungs; the patient was exhausted by copious hemorrhage on two occasions, and was much depressed in mind; nevertheless, she survived for six weeks.

Mr. Hilton regarded the case detailed as an important one, as bearing on the question of the propriety of operating on the larynx, or trachea, in cases where inflammation had spread along the windpipe, and down the bronchial tubes. This case showed the propriety of attempting such operation, and he thought he might fairly deduce from this case, an argument in favour of such proceeding in cases of croup. It was an important point of practice in these cases, to determine when we should cease to rely on other remedies, and resort to operation. This is sometimes a most difficult point to decide; but, as a general rule, he had found, that when a patient affected with obstruction to the respiration, slept for a very brief period, and his hands and feet became cold, the operation was justifiable. He inquired the experience of the Society on this point, and reprobated, as dangerous, the administration of large doses of opuim in cases of obstruction in the larynx and trachea, where sleep could not be procured without, for sleep produced under these circumstances was often fatal. He alluded to a circumstance mentioned in the paper, that in consequence of ulceration at the upper part of the trachea, a tube could not be retained in that canal, and suggested that this difficulty might have been overcome, if the operation had been performed lower down, and below the seat of ulceration. It had been stated that this patient was nearly suffocated by the escape of blood into the air-passages, consequent upon the operation; now had the trochar and canula been employed, instead of the knife, this untoward occurrence would have been prevented, as the canula completely filled up the orifice that was made, and effectually prevented the escape of any blood. In reference to the expectorated matter which had moulded itself to the bronchial tubes and trachea, was this likely to be the blood, so moulded, after its escape from the seat of incision?

Dr. Barker had at first thought the substance which had moulded itself to the bronchial tubes consisted of blood, but it had been carefully observed by Mr. Grainger under the microscope, and that gentleman had determined it to be fibrin, stained by the effused blood. He régretted that Mr. Travers, who performed the operation, was absent, as he might have given good reasons for opening the windpipe at the point he did; but he (Dr. Barker) thought it would have been more desirable to have operated lower down, but in the absence of Mr. Travers, he would not enter into discussion on that point.

Dr. Basham observed, that recorded cases favoured the view of Dr. Barker, that the matter which had moulded itself to the bronchial tubes, was of the true nature of fibrinous exudation. Cases had been related in a volume of the Society's *Transactions*, in which two gentlemen, brothers, had, after an inflammatory attack of the air-passages, expectorated fibrinous moulds of the bronchi. A preparation was in the museum of the Westminster Hospital, in which this secretion from the bronchial tubes was quite colourless. In this case, the patient had expectorated large quantities of these moulds, some of them from the minute bronchi. The paper before the Society was of much practical value, and the question might fairly be asked, whether, in general, the existence of such exudation as was present in this case, was so dangerous as to call for so formidable a proceeding as an operation on the air-passages. The case no doubt, justified such a proceeding, but was this the fact generally, in similar instances of disease?

Dr. Copland observed that the case was interesting, as illustrating the value of an operation in some cases of obstructed breathing. Cases of expectoration of fibrin, moulded to the trachea and bronchial tubes, were not uncommon; they were to be found even in the old writers; patients so affected generally recovered; indeed, he was unacquainted with a case in which these moulds were found on dissection. He was of Mr. Shaw's opinion as to the source of the hemorrhage. He related a similar case, in which blood exuded from the lining membrane of the trachea, after the fibrinous moulds were thrown off. The case before the Society showed, that tracheotomy, under very bad circumstances, might be sometimes performed with some prospect of success. Generally speaking, when operations on the windpipe, in cases of croup and asphyxia, were resorted to, it was generally at so late a period, that the patients sank from congestion of the lungs, the powers of life being too far exhausted to allow of reaction. If earlier performed, the operation would be more likely to be successful.

Dr. Black had seen the operation of opening the windpipe, for obstruction in the air-tubes, frequently performed at St. Bartholomew's Hospital. The opening was made in the crico-thyroid space, and was always successful.

Mr. Arnott had performed the operation frequently; when resorted to in cases of chronic disease, or in acute disease supervening on a chronic one, the patients usually did well. It was not successful in cases of acute laryngitis. It had sometimes succeeded in cases of croup, but was more frequently fatal. He saw no reason against operating in cases otherwise hopeless, as the operation gave one more chance for life.—*Lond. Med. Gaz.*, Jan. 1847.

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28. *Dislocation of the Right Thigh Bone backwards and upwards upon the Dorsum of the Ilium, twenty-one times.*—The following remarkable example of this accident is related by Mr. John F. South, in the *Medical Times*, Feb. 5th, 1848.

Eliza Goddard, æt. 36, admitted into Dorcas's Ward Jan. 6, 1847, at eleven P. M. Whilst pulling off her stocking this evening, on going to bed, had dislocated her right thigh-bone on the dorsum ilii, for the nineteenth time within the last twelve years. The accident first occurred on the 1st of May, 1835, in consequence of her slipping down on a piece of orange-peel. It remained unreduced until the 29th of the same month, when it was replaced by Sir Astley Cooper with pulleys, after an extension of four hours and a half. The second time the dislocation was produced in stooping, and was reduced by Mr. Callaway with the pulleys. The third and fourth time it occurred as she was sitting down; reduction by pulleys; a third time by Sir Charles Bell, fourth time by Mr. Callaway. The fifth time it was displaced whilst stooping, and the sixth as she slipped in going up stairs carrying water. On both these occasions the bone was replaced by Mr. Bransby Cooper with the pulleys. The seventh dislocation was produced by her shoulders being violently shaken, and was reduced with pulleys by Mr. Callaway. She slipped down and occasioned the eighth displacement, which was reduced in the same way by Sir Charles Bell. Having dislocated the thigh the ninth time, as she was sitting down, it was reduced at her own house by Mr. Renwick, who made her stand up behind a chair, and whilst she supported herself on its back he took hold of her foot, bent the knee, and, forcibly rotating the leg outwards, the head of the bone immediately moved into the socket. The tenth dislocation happened in stooping, on which occasion she was brought into Elizabeth's Ward, April 27, 1837, and the reduction was effected by Mr. Tyrrell with pulleys. She remained in the house till the 27th of June following. The following eight times the bone was dislocated by turning in bed, kneeling, stooping four times, and slipping down twice. The reduction on each occasion was effected by pulleys, and at Guy's Hospital, except once, at home, by Mr. Callaway. She says that when she is much agitated, or when her bowels have been relaxed for two or three days, she expects the dislocation will recur, and that it does without her making any great exertion. My dresser, Mr. Leeson, who in the afternoon of this day had assisted me in Judge's case, thought he would try the same mode of reduction with the foot in the crutch, and succeeded without difficulty. After this she became night-nurse in the hospital for a short time, but soon left, and returned home.

March 5th. While stooping she dislocated the thigh the twentieth time, but had nothing done till March 16, when she was readmitted into Dorcas's Ward, and the dislocation was again reduced by Mr. Leeson, with the heel in the crutch, the bone returning with a snap. Two nights after, whilst in bed, the twenty-first dislocation occurred. Extension, with the foot in the crutch, was again tried, but did not succeed. For some reason which I am not aware of, being absent from illness, no further attempt was made till the lapse of ten days, when extension was made with pulleys, and in vain; but a week after the dislocation was reduced, with the foot in the crutch, by Mr. B. Travers, without difficulty.

29. *Pseudarthrosis cured by the method of Celsus.*—Prof. Biagnini relates in the *Giornale di Scienze Mediche di Napoli*, a case of oblique fracture of the humerus in a young man, in perfect health, in which bony union not having taken place after forty days, friction of the ends of the bones was resorted to, but without success. Thinking that sufficient irritation was not occasioned by a single resort to this means, Prof. B. then repeated it three or four times at intervals of a day, and then reapplied the fracture apparatus. In forty days after this treatment, the bone was firmly consolidated.—*Gaz. des Hôpitaux*, Nov. 25th, 1847.

30. *Solution of Sulphate of Iron in Prolapsus Ani.*—Mr. Vincent, in his interesting volume entitled "*Observations on some of the Parts of Surgical Practice*," states that of late he has found such great advantage in employing the sulphate of iron in prolapsed bowel, that the operation may very often be dispensed with, and the patient cured merely by the use of this remedy. Very lately he has had two cases of the worst sort, one of twenty years' standing, with great protrusion and abundance of bleeding piles, which in three weeks was completely cured. The other came from one of the institutions which offer great pretensions in the treatment of these cases. The patient was very bad, having both internal and external piles, and the bowel descended largely and most readily; he was completely relieved in about a month. Other cases of a slighter kind have been set to rights in a week. The patient should be kept in bed, so that the bowel may be as much as possible in repose, and after it is cleansed out, a small quantity of the injection should be daily thrown up, and retained. Balsams are also well adapted to the disease.—

31. *Foreign body in the Ear.*—A case is noticed in the *Gazette des Hôpitaux* (Oct. 5th, 1847) of a child, in the external meatus of whose ear a bean had been introduced. A surgeon, after trying for more than an hour with various instruments without success to extract it, finally thought of trying injections, as so strongly recommended by our correspondent Dr. J. M. Sims (see No. of this Journal for April 1845, p. 336). The reflux of the fluid at the very first injection, ejected the bean.

32. *Case of Ununited Fracture treated by Galvanism.*—Mr. Burman relates, in the *Provincial Medical and Surgical Journal* (Dec. 1, 1847), a case of transverse fracture of the lower-third of both tibia and fibula, in a man 35 years of age, of robust constitution, and temperate habits, which came under his care fourteen weeks after the accident. There was at this time no formation of callus; the fractured ends were quite movable, and there was no inflammatory action about the parts, although the two ends of the bone had been assiduously rubbed together. Mr. B. had a kind of *boot* made for the patient, of turned sheet iron, which, when applied, embraced the whole leg, ankle and foot. This Mr. B. had well adapted to the limb by means of padding, so as to prevent any lateral motion, an object which was the more readily accomplished, as the fracture was perfectly transverse, and that part of the *boot* which was directly over the fracture was made to turn back upon a hinge, so that the injured part, without in the least disturbing the limb, could at any time be got to.

With this apparatus, firmly fixed, and assisted by a pair of crutches, he was directed to take daily exercise in the open air; to partake freely of wine, porter, and animal food; and when sitting in the house, or lying in bed, to have the fractured ends firmly pressed against each other, by means of a broad band passed over the knee, and under the foot-board, capable of being tightened by a strap and buckle, the leg being bent, at the same time, at a right angle with the thigh. This strap was to be removed, and the limb to be permitted to hang down, and partially used, when taking out-door exercise. In addition to this, for nearly half an hour every day, an electro-magnetic current was made to pass directly through the fracture, by means of needles attached to the two poles of the apparatus, their points being inserted just under the skin, one on each side of the fracture. This plan of treatment was commenced on the 9th of October, 1845; by the 22d, sufficient inflammatory action had been set up, to render the further application of galvanism unnecessary; and by the 30th, the deposit of callus was so copious, and the union of the fracture so firm, that at the patient's earnest solicitation. Mr. B. gave him permission to return to his duties, directing him still to wear his boot, and to continue the use of his crutches.

The first week after this, the patient threw aside one of his crutches, the next week, growing tired of his boot, he threw it aside, together with his other crutch, and when seen by Mr. B., some considerable time after, the fractured leg was as firm as the other.

OPHTHALMOLOGY.

33. *Destructive Ophthalmia, with extensive Suppuration of the Cellular Membrane, and severe affection of the Knee-joint, occurring after Premature Delivery.*—By A. M. M'Whinnie, F.R.C.S. (*Proceedings of Royal Med. Chirurg. Soc.*, Jan. 11.) In the early part of last spring, the author was requested to visit Mrs. M——, a lady, aged 40, of spare habit of body, but strong constitution and active mind. She had suffered several previous miscarriages, and had now been delivered, on the 7th of March, of a four months' child, which had been for some time dead in the uterus, and it was believed that the system was contaminated by the retention of the decomposed fœtus. Much serious indisposition and constitutional disturbance preceded and followed the expulsion of the fœtus, and which manifested themselves locally on the second or third day after delivery, by inflammation of the contents of the right orbit: it was found that the globe was much more prominent than that of the other eye, and it was apprehended that an abscess might be forming behind the organ; the cornea, which had lost much of its transparency, was nearly concealed by tumefied conjunctiva, of a crimson colour, which distended the palpebræ, and added materially to their projection. Leeches and belladonna had been applied, and mercury also administered, on account of inflammation of the iris and tunics generally. A few scarifications were made into the vascular conjunctiva, with the view of relieving the chemosis.

At this time the patient became weakened by several attacks of uterine hemorrhage which was arrested by the ergot of rye and cold lotions. The mercury, which had affected the gums, was consequently discontinued. Quinine was now liberally administered, with a sustaining diet.

On the 28th the vision was entirely gone; and, considering the eye to be irremediably lost, I advised the whole treatment to be directed to sustain the system, and repress the uterine hemorrhage, which had returned, and was producing great exhaustion. The quinine was therefore continued, with a larger quantity of sulphuric acid.

In the meantime, the right lower extremity became stiff and swollen; the calf of the leg became swollen and tense, and a large quantity of matter was evacuated by an incision. Abscesses about the knee-joint, and others in different parts of the limb, were opened immediately on being detected: their contents consisted generally of well-formed pus; the integuments were not materially discolored.

On the 12th of April, the right knee-joint had become the seat of painful swelling from effusion into its cavity; and its several structures suffered from the effects of the most destructive inflammation. In fact, it was evident that the whole articulation was extensively disorganized. A very large abscess subsequently made its appearance in the upper part of the thigh, and was opened near to Poupart's ligament.

From this time Mrs. M—— steadily improved in every respect. The knee yielded gradually to passive extension, and though nearly anchylosed at the date of the last report, the patient is able to support herself on the affected limb. The eye was reduced to a third of its normal size, and had receded to the back of the orbit; the tunics had not ulcerated.—*Lond. Med. Gaz.*, Jan. 1847.

MIDWIFERY.

34. *Menstruation during Pregnancy.*—The occurrence of menstrual discharge during pregnancy has been denied by some authors:—M. Moreau thinks it impossible. M. Dubois admits its occurrence, but as a very rare circumstance. He has met with only two examples. In both the menstrual flux appeared, for the first six months of pregnancy, in small quantity, and rather paler than usual, and continued for two or three days. One of these women asserted that the same had occurred to her mother, and some of her aunts. This occurrence is not so rare as is supposed; we have met with several women who menstruated during utero-gestation; in one case, the woman who had been three times a mother, menstruated two or three times during each period of pregnancy.—*Gazette des Hôpitaux*, Oct. 10, 1847.

[We were assured by one female, that she never menstruated except during utero-gestation. We had no opportunity, however, of verifying her statement, but there could have been no motive for falsifying.]

35. *Natural Term of Pregnancy.*—Most accoucheurs admit that parturition takes place when the infant has reached 270 or 280 days. According to M. Leray, it is not from this circumstance that the duration of pregnancy ought to be reckoned. It would be wrong to attribute that to the number of days which are necessary for the infant to have been in being, or to its bulk, or to the energy of its movements. To arrive at the truth, it is necessary to refer it to the same instinctive and innate cause which every month, at nearly the same period brings about an engorgement of the uterine vessels, and with it excites the uterus to expel the discharge.

Upon this presumption, M. Leray came to the belief, that the greatest number of accouchements take place at a constant period, which is that of the tenth menstruation, reckoning from the day of the month when the last took place; and in fact, that physician has found the rule confirmed by the observation of seventy-eight confinements, in which he had taken care to mark the last menstrual period.

The determination of this interesting point is not merely a matter of curiosity, but has the importance of a law constantly applicable in practice. Thus, when it is determined to bring about premature delivery, it is less important to ascertain whether the infant is in its seventh or eighth month, (since after the seventh month it is always viable,) than to judge rightly whether Nature be disposed to second the operation; in other words, whether uterine contractions will actually come on, to rouse and to aid in the untimely labour which is required of her. But if, as M. Leray seems to have determined, the term of delivery and that of abortions are determined by Nature, the day for operating is no longer at the choice of the operator—it is dictated to him by Nature, and his duty is to act according to her intimation.

We will now give the conclusions at which M. Leray has arrived, which are—

1. The time of natural, as well as of premature delivery is directly referrible to menstrual periods.

2. The return of these periods, throughout the course of pregnancy, is in relation to the date of the month corresponding to that of the day when the menses began, at their last occurrence, to appear, whatever may be the number of days reckoned in each month.

3. The premonitory signs of labour at full term, and of premature delivery, occur, in the greater number of women, on the day of the month pointed out, or during the seven following days.

4. Nevertheless, the commencement of the expulsive pains may date, in a normal manner, but much less frequently, from the fifteenth day of the tenth month.

5. Every delivery at full term, or premature, which is accomplished before the right period of the month, may be considered as being in advance.

6. Every accouchement which is effected after the seventh day of the same period may be considered as delayed.

7. The pre-occurrence of labour is much less common than its delay, and most frequently they do not precede the due time more than five days.

8. Delays, on the other hand, have not such limitations.

9. Lastly, in either case, the causes of advance or delay are very appreciable, although there are cases which it is impossible to fix with certainty.

These researches of M. Leray agree with those of other observers; and very similar views have been brought forward by Dr. Tyler Smith, in his able Lectures on Parturition, now publishing in THE LANCET.—*Lancet*, Jan. 15, 1848.

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36. *Sterility and Dysmenorrhœa.*—M. RAYNARD has presented to the Acad. of Med. of Paris, a memoir on this subject of which the following are the conclusions:

1. The cavity of the neck of the womb may be the seat of strictures, congenital or accidental, which is to a certain extent analogous to strictures of the urethra. 2. These modifications in the structure of the uterus induce serious disturbances in its functions, rendering menstruation and conception painful; and when occlusion is complete, impossible. 3. This state of the uterine neck is generally indicated by a thick white viscid discharge. 4. This condition, by keeping up continued uterine congestion, may give rise to serious organic diseases. 5. Stricture of the uterine neck may be suspected in cases of dysmenorrhœa and sterility, which cannot be otherwise accounted for. 6. The treatment of urethral stricture is equally applicable to that of the uterine neck. 7. The best treatment consists in the introduction of graduated bougies, by means of the speculum, and allowing them to remain for an hour or two. 8. If this should fail, we must have recourse to incision of the neck.—*Prov. Med. and Surg. Journ.*, Jan. 1848.

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37. *Rupture of the Womb during Labour, followed by Recovery.*—By Dr. PRASSART. A woman, æt 37, after being about eight hours in labour, was suddenly taken with excessive pain in the abdomen. At the same time a noise was heard as of something cracking; the waters also were discharged. The uterine contractions were instantly stopped, and she became cold and collapsed.

Dr. Prassart was called in and saw her six hours after the accident. She was at that time in the deepest prostration, and complained of extreme pain and tenderness in the belly. The forceps were then applied, and a dead child easily delivered, followed by a large discharge of blood. After removing the placenta from the cavity of the abdomen, several folds of intestine passed into the uterus. The subsequent details of the case are very imperfectly recorded. The woman, however, was able to leave her bed in four weeks, and afterwards recovered entirely. —*Month. Journ. and Retrosp.*, Feb. 1848, from *Casper's Wochenschrift*, No. XLI. 1847.

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38. *Spontaneous Rupture of the Uterus before Labour.* By T. F. BROWNBILL. (*Prov. Med. and Surg. Journ.*, Dec. 29th, 1847.) The subject of this case was 28 years of age, rather stout, but well proportioned and healthy, and had been married about eight years. Ten months after her marriage, after an ordinary labour of nine hours, she gave birth to a full grown female child. Soon after labour she was seized with convulsions, followed by delirium, which subsequently resulted in puerperal mania, from which she recovered after about ten months. From this period she enjoyed good health. She again became pregnant, and was admitted into the Salford Workhouse, Nov. 4th, in order to lie-in.

She stated that in the beginning of the seventh month of gestation, whilst hanging out some clothes, she received a fall, which shook her violently, but did not cause her either then or afterwards any particular pain. On the 20th of November, at 6 A. M., after having passed a restless night, with occasional slight uterine pains, she began to vomit. This was followed by several pretty strong pains, during one of which she experienced (to use her own expression) a severe crack in the back, with a feeling of something suddenly giving way in her inside, which was immediately followed by a discharge of liquor amnii from the vagina. The midwife, who was called, found upon examination, the os uteri nearly closed, hard, and incapable of admitting the point of the finger; there was a slight discharge, of a dark brown colour, from the vagina; the patient had vomited the contents of the stomach, and the pains had altogether subsided. Under these circumstances she left her, and found on her return at 3 P. M., that she had no pain during her absence; the os uteri was lower down, and more yielding, though not in the least dilated, and a slight discharge of water, tinged with blood, escaped whilst making the examination. She had not slept, nor felt the motion of the child since. Soon after the waters broke. A dose of castor oil was now ordered.

Mr. Brownbill saw her the following evening, Nov. 21st, and found that the labour had not progressed, the os uteri remaining contracted; she had no pains; the vomiting continued; she complained of feeling weak and poorly; pulse feeble; countenance anxious.

The next day extreme restlessness came on; she complained of severe pain in the middle of the back; between one and two o'clock her breathing became laborious; her finger nails turned livid; a continued gasping followed, and death closed the scene.

On post-mortem examination, a large rupture of the uterus was found extending from the centre of the fundus posteriorly along its whole length, as far as the os uteri. The length of the opening was about seven inches. The uterus seemed perfectly healthy, and was well contracted over the firmly adherent placenta. The child had evidently been dead some days, the first stage of putrefaction having commenced.

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39. *Twins born at two months interval.*—Dr. WILBERG relates in the *Gaz. Medicalè di Milano*, the case of a young woman married ten months, and who in the eighth month of utero-gestation, (March 24th, 1846,) was delivered of a viable infant, but which had not attained its perfect development. Her labour was easy, the placenta was spontaneously thrown off in about an hour and a quarter, and the usual sequelæ were presented, except that the mammæ did not tumefy, and it was necessary to procure a wet-nurse for the child. However the mother thought that she perceived the motions of another child, and the abdomen increased in size. On the 20th of May, she was again seized with labour pains, and gave birth to a perfectly developed child, larger and heavier than the first. The third day her mammæ became tumid, milk fever occurred, and this young mother was able to nurse both children.—*Gazette des Hôpitaux*, Sept. 30, 1847.

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40. *Prolapsus of the Uterus during Labour.—Subsequent Reduction and Cure.*—By M. NAUDIN.—This woman was in labour with her third child. After the pains had continued for forty-eight hours, the waters having been prematurely evacuated, and the os uteri remaining rigid and undilated,—the uterus was suddenly precipitated outside the vulva. M. Gassail dilated the rigid os uteri with the hand, and presently the child was born, and soon followed by the placenta.

The uterus was replaced, but was again protruded during an effort in making water. It was again reduced, and retained by a T bandage. In ten days this woman was able to walk about, and, on examination, the os uteri was found at its usual height in the pelvis.—*Month. Journ. and Retrospect of the Med. Sciences*, March 1848, from *Gazette Médicale*, Dec. 18, 1847.

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41. *Simple Metritis after Delivery.*—Dr. WILLEMIN maintains that this affection is most frequently produced by deep laceration of the neck of the uterus, an accident which he believes to happen in most deliveries, although generally not to a serious degree. In regard to the symptoms of metritis, he denies entirely the existence of morbid sensibility in the vaginal portion of the neck of the uterus, a symptom which M. Chomel particularly points out. The state of the lochiæ varies extremely; but the most important change on them is an unusual persistence or even increase of their sanguinolent character after the first week, whilst in the malignant puerperal metritis the lochiæ are generally suppressed. Contrary to the statement of Duges and Chomel, M. Willemin asserts that the urinary functions are very rarely disturbed.—*Ibid.*, from *Archives Générales de Médecine*, Dec. 1847.

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42. *Placentitis occurring twice in the same woman.* By Dr. VAN HENGEL.—In Feb. 1844, a woman, thirty-three years of age, having arrived at the exact time when her tenth menstruation would have taken place, was delivered of a child, of whose death there had been distinct signs three weeks previously. The fœtal portion of

the placenta had degenerated into a substance resembling cartilage, of a grayish-white colour; on the uterine surface it was still spongy and porous in several spots. In Feb. 1846, the same woman was again arrived near the time of her delivery. She stated that a month previously she had had a slight attack of fever, after which she was seized with severe pain in the right side of the belly, in which part she felt as if there were a weighty stone lying within her; at the same time she suffered from thirst, sleeplessness, headache, and loss of appetite. Subsequently she was troubled at various times with bloody, watery, and purulent discharges from the vagina.

On the 26th Feb., the pulsation of the fœtal heart could not be heard, nor could any movements of the child be felt by the mother or her medical attendant; and at the same time she complained of nausea and a sensation of cold in the belly. Some days after, she was delivered very quickly of a child which appeared to have been long dead. The placenta was circular, curled inwards at the edges, grayish-yellow in colour. On the fœtal surface it was dark brown or almost black; and it was so indurated as not to bend when held out by one point.—*Ibid.*, from *Schmid's Jahrbucher*, 1847.

ANÆSTHETIC AGENTS.

[Anæsthetic agents have now been used very extensively in surgical operations and midwifery practice, as also in several morbid conditions of the nervous system. It would be impossible for us to notice all the cases in which they have been employed, reported in the various medical journals;—it will be sufficient to state, that they have been resorted to in almost every description of surgical operation, and in perhaps all the varieties of labour.

We have before us a note from Mr. Lawrence to our esteemed colleague, Professor Warren, of Boston, in which that distinguished surgeon states, that ether inhalation has been used in St. Bartholomew's Hospital, in all descriptions of operative proceedings, from the slightest to the most serious, between two and three thousand times, without a single unpleasant result.

Under these circumstances, we conceive that we shall best subserve the interests of our science and of humanity, by confining our notices principally to the facts which have been brought forward illustrative of the physiological action of these agents, and of the cases in which injurious or fatal consequences have resulted from their use, in order to elucidate, as far as possible, the conditions which forbid their use, and to inculcate more caution than has hitherto been observed in the employment of these very powerful articles.]

43. *Physiological Action of Chloroform and Ether on Animals*.—M. Gruby, in a communication to the Academy of Sciences, announces that the effects of chloroform vapour on dogs and rabbits are as follows:—"1. That during inspiration the arterial blood retains its florid colour, and if, under asphyxia, it assumes the dark venous character, the red colour is speedily restored. 2. That a part of the animal, a limb for example, separated from the body, and exposed to chloroform or ether vapour, becomes insensible. 3. That if the member be removed from the vapour, sensibility is restored. 4. That during the inspiration of chloroform vapour, the number of respirations increases with the degree of insensibility produced. 5. That animals may be kept in a state of insensibility for several hours, and afterwards restored, if the inspiration of the vapour be occasionally interrupted. 6. That on the other hand, rabbits, dogs, and frogs, die suddenly in from one to four minutes after respiring the vapour, if the dose of chloroform is from 46 to 60 grains, and the inhalation be uninterrupted."—(*Medical Gazette*, December 24, 1847.)

Mr. Thomas Wakley has performed an extensive series of experiments with chloroform and ether on the lower animals (dogs, cats, rabbits, rats, mice, pigs, hedgehogs, horses, and birds). The chloroform and ether were administered by inhalation. Mr. Wakley's researches show:

1. That there is no important difference in the effects of chloroform when inhaled by the various animals above enumerated.

2. In fatal experiments with the chloroform, the symptoms were quick breathing, muscular weakness, showing itself first, as generally happens, in the hind legs, foaming at the mouth, dilatation of the pupil, and congestion of the conjunctiva. As the experiment advanced, the breathing became slow and laborious, there was complete insensibility and muscular prostration, loss of reflex action (indicated by the absence of winking on irritating the cornea), and, finally, death by asphyxia, the heart's action continuing for some minutes after the cessation of the respiration. Death occurred in a period varying from three to eleven or more minutes, according to the strength of the animal, or the amount of chloroform used.

The post-mortem appearances are not mentioned in connection with the experiments; but in a concluding remark, the author states that intense venous congestion was found in the lungs, heart, and great vessels.

3. The symptoms, as well as the post-mortem appearances, enjoin caution in administering the chloroform to individuals labouring under congestion of the lungs, or any disease of the heart, or great vessels, which obstructs the free circulation of the blood. It has yet to be shown whether in such cases we might not obtain the anæsthetic effects without the engorgement of the lungs by the introduction of the vapour into the rectum.

4. The chloroform acts with greater energy in young and weakly, than in old and strong animals. Thus, in experiment 9, a strong dog, though made to inhale three drachms during eleven minutes, recovered readily, while in experiment 12, a weakly puppy, about eight months old, died from the effects of inhaling one drachm during three and a half minutes. This fact is important in a practical point of view, as, undoubtedly, great caution ought to be observed in administering chloroform to very weak individuals, or to young children, in whom it will probably be found that a much smaller quantity than is usually necessary, will be sufficient to induce the anæsthetic sleep.

5. The animals offered much less resistance to the administration of chloroform than to that of ether; indeed, they even seemed to like the former.—(*Lancet*, January 1, 1848.)

We are still in want of a series of experiments illustrating the action of chloroform when introduced into the lungs, stomach, rectum, cellular tissue, serous cavities, and blood-vessels. It should be used both in the state of vapour and of liquid. It is in this way alone, that we shall ever be able to arrive at a knowledge of its *modus operandi*.—(*Monthly Journ. and Retrospect of the Med. Sciences*, February, 1848.)

MM. Gerardin and Verrier have communicated to the French Academy an account of some carefully performed experiments on animals with ether and chloroform. In one of these experiments, pieces of sponge containing about 15 grammes of chloroform were placed in the nostrils of a horse, in such a manner as to allow free access of air during respiration. In two minutes the animal tottered on his legs, but retained sensation, and shortly recovered. A fresh quantity of chloroform, amounting also to about 15 grammes, was then employed, and insensibility was thereby eventually induced, but not until after seventeen minutes. The pulse remained quiet and regular, the respiration natural. The most painful operations were performed without the slightest appearance of consciousness. One of the carotid arteries was kept exposed during the experiment, but at no period could there be detected any change in the characters of the contained blood. In four or five minutes the horse recovered, and commenced eating.

The manifest inferiority of ether as an anæsthetic agent was well illustrated in another experiment. Sponges soaked with about 30 grammes of ether were inserted, as in the last experiment, into the nostrils of a young colt. After the consumption of this quantity the supply of ether was continually renewed, until 360 grammes were consumed, and the inhalation had continued for three quarters of an hour. But during the whole of this time no change in the animal ensued beyond a slight variation in the pulse, and some dilatation of the pupils: sensibility continued perfect; and there was no alteration in the characters of the arterial blood.

Another set of experiments were performed for the purpose of ascertaining the comparative effects of chloroform and ether, when inhaled as vapours with a large quantity of air, and of the same agents when introduced in the liquid state into the circulation. In the experiments with the vapour of these fluids, the animals were confined in a large wooden box, perforated with apertures, to allow of the free access of air, while the vapour was introduced through a tube communicating with a vessel filled with the fluid, and immersed in a sand-bath. A cat introduced into this apparatus, and subjected to the vapour of ether, in three minutes became attacked with sneezings: in about eight minutes it fell down, and became convulsed; and in eleven minutes was completely insensible. On removing it from the box, and cutting its ears, clear bright blood flowed from them. The insensibility lasted for four minutes and a half. The animal gradually recovered, but continued apparently intoxicated, and unable to stand for a short time afterwards. About 40 grammes of ether were employed. A dog, similarly experimented upon with about 30 grammes of ether, became affected, and fell down comatose in less than two minutes. On being withdrawn from the apparatus, it recovered completely in four minutes. Blood obtained from wounds made during the continuance of the insensibility, had all the characters of ordinary arterial blood.

In one of the experiments performed with the view of ascertaining the effects of ether when introduced directly into the blood, 15 grammes of this fluid was introduced into the jugular vein of a horse. In 30 seconds the animal became dizzy, tottered, and then fell down. In one minute sensation was almost suspended, scarcely any signs of pain being given out on dividing the large plantar nerves. A strong odour of ether was exhaled with the breath. The capillaries contained perfectly bright oxygenated blood. Sensibility gradually returned, and the animal recovered in about six minutes. In an hour afterwards, another 30 grammes of ether were introduced into the jugular vein of the same horse. The preceding phenomena recurred with greater rapidity than before, and the insensibility was complete, and lasted for ten minutes. During the whole of this time the arterial blood underwent no apparent change. In another horse, five grammes of chloroform were introduced into the jugular vein: in fifteen minutes the animal appeared intoxicated, and staggered, having a vacant look, and the pupils considerably dilated. This condition lasted for about a minute, when the animal recovered. In a quarter of an hour afterwards, ten grammes of chloroform were introduced into the jugular of the same horse. In fifteen seconds the same phenomena occurred as before, and the animal now fell down. It moaned, was convulsed, and in one minute anæsthesia was complete: no change was observed in the arterial blood. The state of coma continued for about twelve minutes; then the animal gradually recovered, and began to eat.

From the results of their experiments, MM. Girardin and Verrier deduced that the vapour of ether and chloroform, when they are breathed with a due admixture of atmospheric air, do not act on the respiratory apparatus at all, but only on the nervous centres. They deduce, also, from the three last experiments, that ether and chloroform produce the same effects on the system when injected into the circulatory system, as when respired in the form of vapour: a much less quantity being required in the former than in the latter cases. When the fluids are introduced into the blood, the respiratory function is uninterfered with, nevertheless insensibility is manifested in the same manner as during inhalation, and the arterial blood undergoes no perceptible alteration. In the opinion of MM. Girardin and Verrier, ether and chloroform, therefore, exert a special and direct action upon the organs of sensation, and do not act after the manner of irrespirable gases. If asphyxia ever supervenes, it is only in consequence of deranged nervous action. Cases in which a dark colour of the arterial blood has been observed, are evidently those in which the inhalation has been continued after the production of insensibility, and in which asphyxia has been induced by an excess of the agent employed, or by a want of proper respirable air. ✓

Several other observers, as well as MM. Girardin and Verrier, having doubted the correctness of M. Amussat's opinion, that the arterial blood undergoes any alteration in colour during the inhalation of the vapours of ether and of chloroform, M. Amussat has given an account of the process which he adopts in his experiments. Previous to inhalation, he exposes the blood-vessels and nerves at the upper part of the thigh, notices the difference in colour between the arterial and venous blood, as perceived through the walls of the vessels, and examines the colour of the arterial blood by opening a small arterial branch near the knee, which he then closes by torsion. During inhalation, he states that a gradual change in hue of arterial blood, as seen through the coats of the arteries to that of the venous blood, may be observed; and when inhalation is carried so far that irritation of the nerves is followed by no muscular contractions, the colour of the arteries and veins is exactly the same, and blood procured from the former has the same dark appearance as that procured from the latter. On suspending the inhalation, the arteries speedily resume their characteristic and distinctive appearance. Large animals, such as dogs, should be employed in this experiment; not frogs, pigeons, or rabbits, whose blood-vessels are too small for the purpose.—*London Med. Gaz.*, Feb. 1848, from *Comptes Rendus*, Dec. 27, 1847.

44. *Physiological Action of Chloroform on Man.*—M. SEDILLOT has observed, that individuals enfeebled by age or disease, and those of temperate habits, are readily affected, and the insensibility is in them persistent. In strong and healthy individuals, and in those habituated to the use of alcoholic drinks, the anæsthesia is slowly produced, and endures for a short period.—*Month. Journ. and Retrospect*, March, 1848.

45. *Action of Chloroform, Ether and Benzin on the Nervous System.*—Dr. SNOW, in a paper read before the Westminster Medical Society, (Jan. 8th,) remarked that the action of chloroform and ether on the nervous system was essentially the same. He divides the effects of ether into five degrees, which may be called degrees of narcotism, instead of etherization, to make the description applicable to other vapours. The immunity from pain did not correspond exactly with the degrees of narcotism of the nervous centres, but was greater as the patient was recovering from the effects of the vapour, than in the corresponding degree, as he was getting under its influence; this was more particularly the case with ether, which he considered had superior anæsthetic effects to chloroform in proportion to the narcotism produced. When ether was inhaled, the patient sometimes completely recovered his mental faculties, whilst the insensibility to the operation continued. This curious phenomenon, he believed had not been explained. He had an hypothesis to offer concerning it to this effect—that it depended on etherization of the nerves of sensation, which continued for some little time, on account of the ether exuding through the coats of the capillaries into the extra vascular lymph of the tissues, and requiring some time to return into the circulation, and escape by the lungs. He had met with this persistence of insensibility to the knife chiefly in young subjects, in whom, connected with the greater activity of nutrition, there was more liquor sanguinis exterior to the vessels. In the brain there was but very little at any period of life. Chloroform probably permeated the coats of the vessels less easily, and he had not met with the symptom in question during its use.

Chloroform certainly possessed the advantage of being less pungent than ether, and was therefore more easily inhaled; it had also one or two other advantages. With respect to its greater rapidity of action, this was not an unalloyed advantage. Ether produced a full chirurgical degree of insensibility in the adult in four minutes on an average; it might be desirable to shorten this period to two minutes, but not to a shorter time; not only in order to afford opportunity for watching its effects, but also on account of a cumulative property in these vapours, hitherto not alluded to. The effect of them sometimes increased for twenty seconds after the inhalation was discontinued, and he thought it desirable to have six times this period, or two minutes, for producing complete insensibility, in order to avoid danger. But chloroform, when administered on a handkerchief or sponge, as recommended by Dr. Simpson, its introducer, sometimes produced complete insensibility in six or seven inspirations, as that gentleman stated. 100 cubic inches of vapour of chloroform contain 128 grs. of the liquid, a quantity he believed more than sufficient to cause death; and yet this quantity might be contained in 700 or 800 cubic inches of air, and might be all breathed in a quarter of a minute, by taking deep inspirations. Danger might, it was true, be probably avoided, by putting but a limited quantity on the handkerchief or sponge, but this method was not very applicable in surgical operations, as they could not tell how much would evaporate without being inhaled, and consequently, would be liable to fall short of the effect. When he, Dr. Snow, administered chloroform, he seldom produced complete insensibility in less than two minutes, as he never used the water-bath at a higher temperature than 60°, and if the patient breathed deeply, he opened the valve a little to dilute the vapour still further with external air.

He preferred chloroform on the whole to ether in the cases of adults, and had given it to young children with the most satisfactory results, yet he preferred the less powerful agent in the cases of children, as chloroform acted with still greater rapidity on them than on grown people. Ether rendered children insensible to any operation in the space of two minutes, and its effects on them were extremely favourable; but it required an apparatus by which the vapour could be exhibited very gradually at first, otherwise it caused them to hold their breath, as, indeed, did chloroform. He considered that an anæsthetic agent, which could be safely administered on a sponge or handkerchief by medical men, with no special experience, to all patients, young and old, was still a desideratum. He had lately applied benzin in St. George's Hospital, and its action was very efficient and favourable in four cases of tooth-drawing, where its effects were only carried to the second degree; but in an amputation where narcotism to the third degree was induced, it caused some convulsive tremors, and, consequently, although it totally prevented the pain, and was followed by no ill consequences, yet it did not seem applicable to important operations. The benzin he used was prepared by Mr. Bullock, by distilling benzoic acid with slaked lime. About the same quantity as of chloroform was expended, as about a drachm was used in each of the cases of tooth-drawing, and two drachms in the amputation; but being less volatile, it produced its effects less quickly. Benzin was the same liquid, under another name, as the bicarburet of hydrogen which Dr. Faraday had previously discovered and obtained from condensed oil-gas. It consisted of six atoms carbon and three atoms hydrogen, and had a rather pleasant aromatic odour. He placed on the table an apparatus which he had contrived and used for the administration of chloroform. It consisted of two cylinders placed one within the other, and partially lined with bibulous paper, which absorbed the liquid and gave it up again to the air which passed over its surface. These cylinders were enclosed in a third one containing a water-bath. The inhaler was about the size of a half pint bottle, and when in use was suspended by means of a short tube and screws to the face-piece which formed part of his ether apparatus.—*London Med. Gaz.*, Jan. 1848.

46. *Effects of Chloroform on the Blood.*—Mr. T. B. Todd, who amputated the leg of a patient under the influence of chloroform states, (*Prov. Med. and Surg. Journ.*, Feb. 9th, p. 62,) "one circumstance which particularly arrested my attention during the process of securing the vessels, was the highly venous appearance of the blood issuing from the arteries," and I further remarked, "that in proportion as the special effect of the chloroform passed off from the patient, the blood from the small muscular branches resumed its arterial character."

47. *Means of Reviving those Rendered Insensible by Chloroform.*—M. Plouviez has communicated to the French Academy of Sciences, an account of an experiment on a dog with chloroform. A small dog, weighing about eight pounds, was made to inhale a gramme and a half of chloroform. At the expiration of ten or fifteen seconds the animal was in a state of insensibility. The breathing was soon difficult, and in a short time the animal was dead. The time that elapsed between the exhibition of this dose (about the twentieth of an ounce) and death was a minute and a half. On dissection there was nothing to indicate the cause of death. Dr. Plouviez, in order to ascertain what course could be taken in the event of such an accident occurring to a human patient, made several experiments with various animals, which were ceasing to breathe after the use of chloroform. He introduced air into the lungs in the same way as is done with persons, who have been suffocated by the fumes of charcoal, by stimulating the act of respiration, and from time to time slightly compressing the chest. By adopting this means all the animals speedily resumed their former state. In some cases he even waited until the breathing had entirely ceased, and the animals were apparently

dead. In various periods of time from thirty seconds to four minutes, he was able to bring them to life.

M. Blanchet has shown by experiments on animals that oxygen gas introduced into the lungs is efficacious in recovering animals poisoned by chloroform.—(*Comptes Rendus*, 20th Dec., 1847.)

The following means are recommended for adoption in cases where an overdose of chloroform has been taken, by the Editor of the *Month. Journ. and Retrospect of the Med. Sci.*, (March, 1848.) The patient should be laid on the floor, with his head, if possible, near a current of fresh air. The breathing may be assisted by compressing the chest, and a little cold water ought to be thrown on the face and chest. If the symptoms continue notwithstanding these means, artificial respiration should be diligently practised, and the extremities briskly rubbed with hot cloths. The friction promotes the capillary circulation, and in this manner, undoubtedly contributes powerfully to restore the action of the heart and lungs. In extreme cases electro-galvanism should not be neglected; shocks may be transmitted through the chest, so as to assist the efforts at artificial respiration, and in the case of syncope, a powerful galvanic current should be transmitted through the heart. A very powerful and rapid means of rousing the sinking powers of life, and one readily obtained, is found in the application of boiling water to the chest. This is effected by filling a glass or cup with boiling water, over the top of which a towel is placed, and then inverting the vessel on the breast of the patient. The efficacy of this application has been repeatedly displayed in the practice of M. Rayer of Paris. Individuals who, from disease, were so near death as to be completely insensible and speechless, have thus had intelligence and speech restored, while life was prolonged for a considerable time. Of course, it is understood that we only suggest its use in extreme cases. Dr. Simpson directs attention to the impropriety of administering stimulant liquids by the mouth, when, from the state of insensibility, the power of swallowing is lost. The danger of their covering the aperture of the glottis, or entering the larynx, and so hastening death by suffocation, is indeed imminent. When the saliva is secreted in large quantity, it will be advisable to place the patient on his side, to prevent it acting injuriously in the same way. The loss of the stimulants is scarcely to be regretted, as the other means above proposed are infinitely more efficacious.

The procedure here indicated is equally applicable, whatever view may be entertained as to the immediate cause or mode of death. This point is not yet satisfactorily determined. As with other cerebro-spinants, the death seems to be of a mixed kind, partaking both of the characters of asphyxia and syncope, the one or other predominating according to the dose, mode of exhibition, idiosyncrasy, &c. Experiment has shown that, when a small proportion of air is inhaled with the chloroform, asphyxia plays a prominent part in the symptoms.

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48. *Opinion of M. Roux relative to the use of Ether Inhalation.*—The *Gazette des Hôpitaux*, (Nov. 11 and 16,) contains an interesting lecture on this subject, by M. Roux, delivered at the opening of his clinical course for the session 1847–48. The lecturer considers pain in three points of view:—

1*st*. As a symptom in many diseases, in which it constitutes a valuable element of diagnosis, and in which it serves as a characteristic phenomenon.

2*d*. As inseparable from surgical operations.

3*d*. As a therapeutic means capable of producing a favourable modification of the diseased organism.

In treating of pain as inseparable from surgical operations, the distinguished surgeon thus notices etherization:

"We no longer resort to etherization as we thought it our duty to do when it was first discovered. Then it seemed necessary that we should hasten to see its effects; we had to multiply cases,—we took advantage of all cases which offered themselves to us. Now that thousands of facts have been collected, we see that ether should be *only* used for serious operations, where pain is very much dreaded."

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49. *M. Blandin's opinion of Etherization.*—M. Blandin, in a clinical lecture, (*Gaz. des Hôp.*, Nov. 23,) remarked: "Like all active medicaments ether, with

its advantages, has its evils. We know now, no less than twelve persons who have succumbed to etherization, and these deaths are well authenticated—unhappily, they cannot be doubted."

50. *Comparative advantages of Ether and Chloroform.*—According to M. Sedillot, (*Proceedings of Acad. of Sci.*, Jan. 10,) the advantages possessed by chloroform over ether are compensated by dangers which should be pointed out to the profession. Thus, when, for instance, anæsthesia has been produced by ether, if the inhalation be suspended, insensibility may continue for some time, but does not become more complete; on the contrary, with chloroform, the pallor, smallness of the pulse, weakness of respiration, and coldness of the skin sometimes increase, after the inhaler has been removed, in an alarming manner. Twice M. Sédillot seriously feared the consequences of this incessant annihilation of the vital functions. Therefore, the professor of Strasbourg thinks it advisable that the surgeon be not guided, as in the administration of the vapour of ether, by the state of the respiration, but that he should suspend the inhalation of chloroform when muscular relaxation has taken place.—*Med. Times*, Jan. 22, 1848.

51. *Injurious Effects from Chloroform.*—Mr. Beales, of Suffolk, relates (*London Med. Gaz.*, Dec. 24th) the case of a young lady, 27 years of age, in whom chloroform inhalation produced asphyxia and convulsions, and he states that he witnessed an operation for stone, in which violent convulsive action of the extremities was occasioned by chloroform inhalation.

Mr. R. Stewart relates, in the *London Med. Gaz.*, (Jan., 1848,) a case of a young lady to whom he administered chloroform preparatory to the extraction of a tooth. In two minutes slight convulsive twitchings of the muscles of the face occurred, to these violent convulsions of the whole body supervened, accompanied with loud cries and sobbings; the pulse was 80, full and hard; the pupils slightly contracted, and the jaws firmly clenched together. She continued convulsed for at least ten minutes, and then became tranquil, and sank back for an instant in her chair. She then gave way to a few hysterical sobs, and soon recovered.

At a recent meeting of the Surgical Society of Ireland, Mr. Stapleton stated that he had lately tried chloroform in some cases in Jervis Street Hospital. One man was put into a sound sleep, but awoke in about a minute afterwards, and expressed himself as having been conscious of everything that was done to him; while apparently unconscious, he said that he had felt himself pinched, and so forth; but was unable to resist or give any indication of feeling. A resident pupil of the hospital had tried it a day or two ago, and was very merry during its action; to-day he again tried it, and was put to sleep in two minutes, but recovered in two minutes more, and shortly after began laughing in a hysterical manner, and soon fell into violent convulsions, so as to require the united efforts of several people to hold him down in bed; he then got rigors, cold perspirations, and sickness of the stomach; his pulse sometimes fell very low, and, when the excitement was coming on, it would rise to 100. He remained in this uncertain state for two hours, and then expressed a wish to sleep. Under the operation of the chloroform there was a complete loss of muscular power, except during the convulsions.—*Dublin Medical Press.*

Mr. Wm. W. Gull relates in the *Lond. Med. Gaz.*, (Dec. 1847,) the case of a boy, æt. 11, under the care of Mr. Cock at Guy's Hospital, for disease of the knee-joint, and for which it was determined to divide the tendons of the flexors. The boy was in good health, but his nervous system a little weakened from confinement to bed; his heart and lungs sound. A small quantity of chloroform, not exceeding thirty drops, was put upon a cone of bibulous paper, and placed over his mouth and nose. In less than a minute he was entirely insensible, the pupils becoming widely dilated, and the pulse small and frequent. As the operation was being proceeded with, his consciousness partly returned, and a few drops of the chloroform were put on a handkerchief and applied to the nose. He was instantly affected, and to such a degree that there was the greatest apprehension of his never rallying; the pulse was very feeble, 56; the breathing so indistinct as scarcely to be distinguished; the face pale, lips congested; the symptoms of collapse extreme. Ammonia was employed, and, after about five minutes, he gave two or three deep inspirations: it was however, more than fifteen minutes before he was so far himself as to be considered out of danger. Subsequently a small quantity of brandy was administered. He complained of headache. For a long time after he recovered his special senses and power of motion, general and perfect anæsthesia of this surface existed. The boy subsequently entirely recovered.

52. *Pneumonia Coming on after Inhalation of Ether.*—At a meeting of the Medico-Chirurgical Soc. of Edin., May, 1847, Dr. Bennett mentioned the following case of pneumonia coming on after ether inhalation. "A gentleman had been confined for a fortnight with inflamed glands in the groin, which suppurated. He was anxious to have the ether before they were opened, which was given, and produced its full effects in three minutes. The ether employed was of the greatest purity, and had been manufactured for the purpose of inhalation. Dr. Simpson's instrument was used. The patient afterwards stated that he had felt the abscess opened, although there are some grounds for doubting the accuracy of the statement. He experienced the most pleasant sensations, and described himself as being in elysium for some time even after consciousness had returned. In a few hours great mental depression supervened. After ten hours there was a distinct rigor, followed by high fever, with mental hallucination. Next day all the symptoms and signs of pneumonia were made manifest, and there was subsequently dullness on percussion, crepitating rale on the right side inferiorly, slight cough, with rusty coloured sputa. He recovered under the usual remedies. This gentleman had been in bed for a fortnight; he lived in a warm room. There had been no exposure to cold, or indeed any other appreciable cause, except the inhalation of ether.—*Lond. and Edin. Month. Journ.* for June, 1847.

53. *Injurious Effects from Inhalation of Ether.*—Mr. Eastmart has published the case of a boy, who had compound fracture of the left thigh. Amputation was performed when he was under the influence of ether. With the conclusion of the operation the difficulties and anxieties of the case commenced, for the patient was in such a state of exhaustion and intoxication, that his life became endangered, and he died three hours subsequently. The state of the brain during this period was peculiarly distressing. There were alternate manifestations of excitement and depression of the sensorial powers; at one time resembling delirium, at another like approaching syncope, and again, like violent intoxication.—*Ibid.*

54. *Death from Ether Inhalation.*—M. Piedagnel reported to the Medical Society of Emulation, June 2, 1847, the following case, in which he did not hesitate to attribute the death of the patient to the inhalation of ether.

A patient was admitted into M. P.'s wards with a slight cough and uneasiness. One of the residents made him respire the vapour of ether on three consecutive days, without producing insensibility, as he proposed to extract a tooth. The first day the inspiration was continued for twenty minutes, the second, thirty minutes. Finally the patient determined to have the tooth extracted without etherization. He was afterwards attacked with loquacious delirium and died. Autopsy showed that he had intense arachnitis. M. P. is convinced that the ether was the cause of this inflammation. In answer to a question, M. P. stated that the etherization was made under his own eyes, and with an approved valvular apparatus.

55. *Death Produced by Chloroform.*—Dr. T. N. Meggison relates (*Med. Times*, Feb. 5th, 1848,) the following case in which death resulted from the inhalation of chloroform.

"The patient, a fine grown girl of fifteen, had been suffering for some time past from onychia of the left great toe, the matrix appearing involved extensively. After consulting with Mr. Lloyd, my assistant, we deemed it absolutely necessary that the nail and matrix should be completely removed. I ought to say that about a year previously, the nail of the other great toe had been removed at the Newcastle Infirmary; but, the matrix having been left, the disease had spread, and induced necrosis of the distal phalanges of the toe, rendering amputation necessary, the propriety of which we merely urged, thinking to do it after the operation had been performed on the other foot.

"During the previous operation she was under the influence of ether, and said she felt no pain nor inconvenience from it except a severe headache afterwards, and great uneasiness during the inhalation, from irritation of the fauces. We assured her she would feel none of that irritation from the use of chloroform, and that in the cases in which I had used it the headache, if any, had been transient. The whole of the day previous to the operation she had been fretting much, and apparently dreading it, crying continually, and wishing she were dead rather than submit to it. In this state we found her on Friday last, at noon, when we went to perform the operation. We endeavoured to console her, and calm her fears, assuring her she would not feel it, and urging her to be more collected, but in vain. She sat down in the chair sobbing. I poured a teaspoonful of chloroform on a handkerchief, and, on applying it, she drew her breath twice, and pulled my hand down. I asked her to put her hands on her knees, which she did, and breathed quietly for about half a minute, when, no stertorous breathing or change of appearance supervening, I lifted her hand, and, finding it rigid, requested Mr. Lloyd to remove the nail and matrix. This was dexterously done with one sweep, at the termination of which she kicked out, and I, thinking the chloroform not sufficiently potent, was proceeding to apply more to the handkerchief, when her lips, which had been previously of a good colour, became suddenly blanched, and she spluttered slightly at the mouth as one in epilepsy. I threw down the handkerchief, and gave her cold water immediately, followed by brandy. This, however, had not the least effect, not the slightest attempt at rallying being made, and in a minute more she ceased to breathe. A vein in the arm was opened, as also the jugular, but no blood would flow. The whole process of inhalation, operation, bleeding, and death, could not, I should say, have occupied two minutes."

At an inquest the following testimony was given by Sir John Fife :—"I am a surgeon in Newcastle-upon-Tyne. I made a *post-mortem* examination of the body of Hannah Greener, the deceased, along with Dr. Glover, about three o'clock in the afternoon of Saturday last. The body was that of a well-grown girl, of the age indicated. The legs were rather thin; calves not sufficiently fleshy; breasts tolerably well developed, and, on the whole, thin. She was not devoid of fat, as appeared on proceeding to open the body. The body was perfectly free from spots or stains of any kind, except from the marks of phlebotomy, to which she had been subjected, and some slight livid stains about the neck. The toes showed the nature of the operations which had been performed. There was simply the ordinary degree of rigidity. The mouth was a little open. The eyes presented no appearance of congestion. On opening the chest the lungs were not collapsed. One or two slight adhesions were encountered on separating them from the walls of the chest. The external appearance of both lungs, over the whole surface, but especially in the inferior portions, was that of organs in a very high state of congestion. They were mottled with patches of a deep purple, bluish, or scarlet hue. They were everywhere crepitant. Along the outer and anterior border of both lungs, particularly of the upper lobe of the left lung, were several emphysematous bubbles of small size. On cutting into the pulmonary tissue, it was found free from tubercles, unless some hard bodies about the roots of the bronchia, enlarged and partially indurated glands, could be so called. The pulmonary tissue was filled with bloody froth, which was also found in the interior of the bronchia mixed with mucus. There was no appearance of hepatization. On examining the larynx and trachea, the epiglottis was found reddened at the summit, of a vermilion hue. The mucous membrane of the larynx was redder than natural, mottled with vascular patches. The sinuses of the larynx contained a good deal of dark mucus. The œsophagus was healthy. The stomach was distended with food. Digestion had been going on at the time of death. The liver, kidneys, and spleen were more congested than usual. The heart contained dark fluid blood in both its cavities; very little in the left; its structure, and that of the great vessels near it, was healthy. The brain, externally and internally, was more congested than usual, and the ventricles contained rather more than the usual quantity of serum. In my opinion the cause of death was the congestion of the lungs, and that congestion I ascribe to the inhalation of chloroform. Of the power of chloroform to occasion such congestion no doubt can be entertained after the experiments of Mr. Wakley and Dr. Glover on animals. There does not seem to have been anything in the previous condition of the young woman to have prevented the surgeon from having recourse to chloroform as a means of allaying pain, in one of the most painful operations of surgery. Such is my opinion of the effect of chloroform in lessening human suffering, and the small degree of danger attending its application in the cases that I have seen, that if I were myself required to undergo an operation I would have no hesitation whatever in taking it. I have been using chloroform three or four times a week ever since its efficacy in relieving pain was published, and I have never seen bad effects from it. In one instance, that of a woman, who had to submit to the removal of a tumour, weighing about three pounds, and distributed over a surface about a foot square, Dr. Glover and I administered about eight times the quantity of chloroform that was used in the case of the deceased. She recovered quickly, and was not worse after the operation than might have been expected from its formidable character. I have used it frequently in amputation, lithotomy, and a great many severe surgical operations, and never knew any bad consequence arise from it. I attribute the fatal effect of the chloroform in the present instance to peculiarity in the constitution of the young woman. I am doubtful whether it arose from the state of the lungs, or the peculiar susceptibility of the nervous system. No effect could arise in the present instance from the ether she took on the 26th of October in the infirmary. I have no hesitation in affirming that the fatal issue of this case might have occurred in the hands of the most prudent and skilful surgeon that ever lived. It sometimes happens that a person will die from the shock of the operation, within a very few minutes after, and with nothing to show the cause—merely from the shock it gives the system. Those cases are rare. I think in such cases the same individuals would be influenced in a similar way with chloroform. The same susceptibility of nerve that would render the shock fatal would render the chloroform fatal. No human foresight, no human knowledge, no degree of science could have forewarned any man against the use of chloroform in this case. I have refused to apply it in some cases where the operation could be done in a moment, and was not attended with severe pain; but in every painful case I use it, and, unless it produced insensibility, I would go on repeating it to double the quantity used in this case, and more, if it were necessary. A case occurred lately in the infirmary where a great deal of blood flowed during the operation, which was a very tedious one; and chloroform was repeated during the operation without any bad result afterwards."

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56. *Fatal result from inhalation of Chloroform.*—Dr. ROBERT JAMIESON relates (*London Med. Gaz.*, 26th Feb., 1848) a case of death from inhalation of chloroform. The subject of it was a lad, æt. 19, apprentice to a druggist, who had been in the habit of inspiring the vapour of chloroform for the sake of the pleasureable sensations which he found it created. On the 8th of Feb. "he had been observed when weighing out an ounce of chloroform to order, to be holding his handkerchief to his mouth, and to become soon after somewhat excited. There was only a boy with him in the warehouse at the time, and as he had known him to become violent when interfered with on such occasions for the purpose of taking the chloroform bottle from him, he was not displeased when he saw him proceed to a retired part of the shop, where, leaning his body forward on a counter, and stooping his head, he seemed to be inhaling the vapour from some folds of his apron, which he had applied to his mouth and nostrils. Some person connected with the establishment came in at the time, and seeing him in this position, and apparently snoring, tapped him on the shoulder, and said 'What are you doing asleep at this time of the day?' Receiving no answer, the boy in the shop told this person that Walker had been again at the chloroform; on which they determined, as had been formerly their custom, to send for his father to take it from him, as on such occasions they had found that no other authority had any control over him. No one went near him until about twenty minutes after this, when his father arrived, and he, on lifting him up from the counter on which his body was bent forwards, found him to all appearance lifeless."

In his remarks on this case Dr. Jamieson says:—"The quantity of chloroform inspired in this instance could not be accurately ascertained, but was supposed, from the fluid left in the bottle out of which it had been taken, to have been about three or four drachms. He had frequently been in the custom of inhaling it, and that very day had repeatedly been inspiring small quantities of it by holding his nostrils over the mouth of the bottle. That asphyxia was the proximate cause of death, the history of the case, and the post-mortem appearances, leave no room for doubt. That the asphyxia was consequent upon the inhalation of chloroform seems also evident from the history of the case, the post-mortem appearances, and the results of the examination of the blood; though at the same time it is probable that the fatal issue may have been facilitated by the unfavourable position in which the body was placed when the insensibility was induced, and possibly also by the morbid conditions which existed within the chest. Not having seen the body until some time after it had been raised up from the counter, I examined those who saw him lifted up, and from the account furnished by them, though his mouth and nostrils were lying upon the folds of his apron, upon the hard board before him, they did not consider his position sufficient to account for suffocation."

[Another case of death from inhalation of chloroform will be found noticed in our Domestic Summary, p. 572.]

57. *Ether in Tetanus.*—Mr. Hopgood relates (*Med. Times*, Jan. 15th) a case of tetanus, in a boy nine years of age, resulting from an incised wound on one of his knuckles, successfully treated by the inhalation of ether.

M. Velpeau employed chloroform in a case of traumatic tetanus in a man thirty years of age, admitted into La Charité. The spasms were arrested whilst the patient was under the influence of the article, but a fatal result was not prevented.

58. *Chloroform in Typhus Fever.*—(*Lancet*, January 29.) Dr. Fairbrother has employed chloroform in a bad case of typhus fever, to produce a sedative effect. The patient was delirious, the system worn out for want of sleep, and life was despaired of. The soporific state was induced in a few seconds, and continued for half an hour. It was several times subsequently repeated, at intervals, and with very satisfactory results. The patient recovered.

59. *On the Application of Ether in Midwifery.*—Dr. Roux, of Toulon, who has closely investigated the subject, has come to the following, among other conclusions, respecting the use of ether in midwifery.

1. No injury is done to females in the puerperal state by the respiration of ether vapour.
2. That in ordinary deliveries, ether vapour, by suppressing pain, does not interfere with labour.
3. That in difficult labours it is desirable, both for the mother and child, to prevent suffering.
4. The uterus and abdominal muscles continue to contract when the female is under the influence of ether.
5. The child does not appear to participate in the stupefaction produced by ether.
6. The various changes following delivery are not impeded or aggravated—thus the hemorrhage is not increased, and the milk is equally secreted.—*London Med. Gaz.*, October, 1847, from *Gaz. Méd.*, October 9.

60. *Use of Chloroform in Natural Labour.*—Dr. Samuel Ashwell, late Obstetric Physician and Lecturer to Guy's Hospital, in a letter to the editor of the *Lancet*, (March 11, 1848,) condemns the use of chloroform in natural labour. He asks: "Why is this great risk to be run? It is not pretended that it shortens the duration of the process; nay, if anything be attributed to chloroform on this head, it is almost certain that delay must be the consequence of its exhibition. There is no evidence to show that any *favourable* effect, save the unconsciousness of pain, can be traced to its influence.

"I do not deny that physical pain is an evil; but before we attempt to abolish this hitherto invaluable accompaniment of natural labour, it is incumbent on the advocates of the use of chloroform to prove to demonstration that this interference is entirely safe. A careful perusal of one of the able and admirable lectures of

Dr. Tyler Smith (vide *The Lancet*, March 27, 1847) will satisfy any impartial inquirer that obstetric etherization is, at least, of very doubtful benefit, and of very complicated and uncertain operation."

He quotes some remarks of Baron Dubois (see Number of this Journal for October, 1847, p. 521), and of Mr. Tyler Smith, and then observes:

"These facts, and three deaths at least from the new agent, chloroform, besides many other serious results, will probably satisfy most practitioners that 'a meddlesome midwifery' is still a bad midwifery.

"In common with most teachers, I have long inculcated at Guy's Hospital, 'that unnecessary interference with the providentially arranged process of healthy labour is sure, sooner or later, to be followed by injurious and fatal consequences.'

"I think the chloroform will be no exception to these precepts; nay, so sure am I that it needs only to be extensively used to insure its entire abandonment, that I would willingly leave it to such a result, if it might be accomplished without further loss of life. But the instances in which it has already proved fatal, although they will alarm, may not so quickly, as is to be desired, lead to its final relinquishment. It is, therefore, a duty to urge every just plea against its further use.

"I forbear," he further says, "to enter into the question—whether there be any form of labour in which chloroform should be used?—further than to say, in instrumental and flooding cases, we rely as a considerable evidence of the safety of the patient, and of the uninjured state of the womb and adjacent parts, on that very pain which it is the purpose of the gas to destroy. Whether in the very difficult cases of turning, where the womb is most firmly and tonically contracted round the child, it might be of use, I am not prepared to say. I fear, however, it would produce but little benefit. Lately, at Enfield, I was consulted in a case of rigid perinæum, where the chloroform was fully exhibited, under the impression that it might induce relaxation. No such result followed. Dr. Millar, with great promptitude, applied twenty leeches to the part, and the child was eventually born dead. If there was any effect produced here, it was to weaken the uterine effort, but whether the chloroform produced the death of the child, I cannot say."

61. *Delirium caused by Inhalation of Chloroform.*—Dr. Mitchell, of Dublin, relates a case in which he administered chloroform to a patient in labour, with the effect of rendering her violently delirious.—*Lond. Med. Gaz.*, Jan. 1848, from *Dub. Med. Press.*

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62. *Recovery from a poisonous dose of Strychnia.*—Dr. Thomas Anderson records, in the *Monthly Journal and Retrospect of the Medical Sciences*, a case in which seven grains of strychnia were taken without producing fatal consequences. The subject of the case was a gentleman who had long suffered from severe tic douloureux, for the relief of which he was in the habit of taking muriate of morphia, in increased doses, until three and a half grains were necessary to produce its effect. Having occasion to go a short distance in the country on business, he took, previous to setting out, his usual dose, 3½ grains of strychnine, given him by an apothecary by mistake for muriate of morphia, which he placed on his tongue and swallowed;—he remarked at the time that it was extremely bitter, and that the taste was more than usually persistent, but it did not occur to him that anything was wrong. Shortly after, however, while walking along the street, he felt slightly indisposed, the most prominent symptom being a sense of numbness in the back of the legs, which he attributed to the effects of cold, to which he had been exposed in the early part of the morning. As these symptoms did not appear of any importance, he proceeded by a public conveyance to the village where his business lay, and returned by the next opportunity. During the whole of this time the symptoms remained precisely as they were the moment he first observed them; but as he was walking along, on his return, they suddenly increased, the numbness being accompanied by a sense of want of power, and a sort of drag-

ging of the muscles of the legs, which soon become so great, that, as he describes it, he had to put his hands at the back of his thighs in order to push his legs along. This occurred at nearly two and a half hours after he had taken the dose of the supposed muriate of morphia, and, at this time, there could have been nothing remarkable or unusual in his appearance; for, on his way home, he met a friend to whom he communicated his sensations, but who laughed at his evident apprehension, and assured him that it was all imagination. As he was in the midst of describing the effect upon his muscles, and bending himself so as to show how it occurred, he suddenly overbalanced and fell heavily backwards. He was immediately raised, and, on attaining the upright position, he felt himself much in the same state in which he was before, excepting that he was excessively nervous and alarmed. The want of power in the legs did not at all increase in intensity, and no spasmodic affection was observed, although the patient was himself under the impression, that his fall was somehow connected with the previous symptoms.

The patient's fall and the nervous state into which he had got now fairly alarmed his friend, who begged him to get home as fast as possible, and accompanied him on his way, as he experienced considerable difficulty in walking, and could not get on without support. On reaching home he felt somewhat better, and remained sitting for some time, and at length retired to bed, about five hours after the first appearance of the symptoms. Just previous to stepping into bed, in order to insure a good night's rest, of which the recent symptoms rendered him somewhat doubtful, he took a second dose of the powder equal in amount to the first. In less than ten minutes after, he was seized with a violent tetanic spasm, affecting the legs and muscles of respiration, and had only time to call out for assistance before the sensation amounted to that of absolute suffocation. Fortunately, assistance was close at hand, and he was immediately raised up in bed, with the effect of entirely relieving the sense of suffocation, and a medical man sent for. Spasms now followed each other in rapid succession, the intervals being about a quarter of an hour or twenty minutes, and the affection was confined principally to the legs, back, and respiratory muscles, the arms being comparatively unaffected. The numbness and dragging of the muscles, which had been continuous during the first five hours, disappeared entirely during the intervals of the spasms, and the patient was left without any uneasy sensations, excepting the exhaustion of the previous fits and the apprehension of its successor. During the whole of this time he was not only perfectly conscious, but his senses were preternaturally exalted, and he distinctly heard a variety of whispered observations of the physicians and his friends, which, from their tenor, were obviously not intended to reach the ears of the patient.

The paroxysms, after continuing for some time, began gradually to diminish in violence, the intervals becoming longer, and the duration of each spasm shorter, and it was hoped that they were about to pass off, when all at once they returned in their original violence. This proved, however, to be the last expiring effort of the poison; for the symptoms now entirely ceased, about thirteen hours after the first dose was taken. At the conclusion of the spasms, the patient was left in an excessively exhausted state, and was unable to turn himself in bed; from this, however, he recruited with great rapidity, as he was able to get up on the evening of the next day, and on the second he walked out and went about his usual business. The most remarkable fact connected with the case is, that, from that time the attacks of tic douloureux entirely ceased, and he has not since had any return of it. The medical treatment employed in the case was unimportant, and had not any effect on the progress of the symptoms.

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63. *Symptoms of Poisoning, after eating a quantity of Mace.*—Dr. George C. Watson relates (*Prov. Med. and Surg. Journ.*, Jan. 26th, 1848) an interesting case, in which toxicological effects were produced by the arillus of the nutmeg. The following description of the anomalous feelings and intellectual disturbance experienced are in the words of the patient himself.

"At about 11 o'clock in the forenoon of the 12th of March, 1847, I was in a sale room, in which there were samples of spices, &c.; and, from curiosity, I ate about as much mace as could be lifted on a teaspoon, if broken small. About half past twelve o'clock I felt a pain on the crown of the head, extending over a space about the size of a penny-piece; I also felt a slight nausea of the stomach, as if I had been smoking inordinately. I had kept eating the mace in small bits over about an hour and a half. I walked home, and dined about three o'clock. I still felt the pain slightly on the top of the head, and also the nausea and slight giddiness. I rose from dinner and looked out at the window, to dissipate, if possible, this disagreeable feeling. I then felt the blood rush to my head, but the feeling was as if an electric current had passed from the crown of the head downwards. Not wishing to be overcome in the room in which I then was, I made an effort, and got mechanically down-stairs. I then felt the same sensation which I should suppose a person would experience who had become nearly insensible from extreme cold, and that if I had yielded myself to its influence, I could have slept away out of existence without pain. I felt this sensation twice; the second time when I had got down stairs into the back parlour. I then walked about in the back yard, to endeavour to drive away the extraordinary sensations, but in a few minutes a cold shiver came upon me. I then got into the house, and laid myself upon a sofa near the fire. From that time I felt every variety of heat and cold from their respective extremes. At every time the blood went from and returned to my head, the current changed the sensation, sometimes feeling myself very hot, and the next very cold, but never the same sensation. I felt at one time such a pressure in the head, that it appeared as if all the blood in the body had rushed to obtain possession of that region, and I thought I could hear it gushing in my ears. These symptoms became gradually weaker. A medical gentleman was hurriedly called in, and some brandy was administered. The effect of this upon me was as if I had been electrified from the roof of the mouth downwards in a straight line, and dying off towards the feet; it then seemed to diffuse itself over the whole body. The state of my body generally felt as if I had had hold of slightly galvanized wires, the wires apparently working in antagonist directions, out of tune and keeping; like, in fact, so many connecting rods working from eccentrics out of truth, and jarring against each other. The state of the mind was, I should suppose, similar to that of the opium eater, entertaining no apprehension of the result, although aware of the presence of some danger. The pulse, during the several paroxysms, was very varied, being from 70 to more than 100. During the attack I felt every nerve in my teeth, but no pain."

Dr. Watson says that when he saw the patient with the surgeon first called in, the patient's feet were cold, and required artificial heat: the head throbbed, eyes looked injected, and the countenance acquired a bizarre expression, whilst the words he employed to express his sensations seemed selected for their merit of being the opposite to what should have been used. Camphor mixture and compound spirits of ammonia, with chloric æther, were given at short intervals; the bowels were moved frequently by salts and senna, and the forehead was kept cool by a spirit lotion and strip of linen. His temporal arteries beat strongly for several hours. The persistence of the intellectual disturbance was remarkable, for on the third day the odd and excited state of the sensorium had not quite disappeared, so that he even then felt himself unable to attend to his office books. His thoughts hardly submitted themselves to his control, unless by a consciously great effort."

It ought to be mentioned that the surgeon first called in, after giving brandy and water, finding it of no service, exhibited an emetic, which brought away some trifling portions of mace.

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64. *Recovery from a large dose of Aconitina.*—Dr. Golding Bird in relating to the Medical Society of London (Dec. 13th, 1847) some of the most remarkable facts connected with a case of poisoning by aconitina, stated that he was, from peculiar circumstances, not at present at liberty to allude to more than the actual symptoms presented whilst the patient was under his notice. He was anxious, however, to relate these, because they were not only very remarkable, but had not at present been recorded as the results of poisoning by the alkaloid in question; indeed, no case of this kind has been published, although several exist in which the roots and leaves of the aconite have accidentally produced death. There are few agents more likely to be employed by the secret poisoner, with greater certainty of escaping detection, than aconitina, the terrific power of which in destroying life, even in minute doses, is well known. A few days ago, Dr. Golding Bird

was requested hastily to join a consultation on the case of a person holding an important position in society, and of very high intellectual attainments, who, under very peculiar circumstances, had swallowed some aconitina, which had been procured from one of the most respectable druggists in London, from a prescription of the patient's own writing, he having devoted some part of his time to the study of physic and chemistry, as a part of his very extended education. From collateral evidence, it appeared probable that almost immediately after taking the poison, the person must have fallen, and struck his head a severe blow against some furniture in the room. The poison, or the blow, or both, must have produced immediate violent vomiting, as the room was flooded with vomited matter. How soon he was discovered after this event was not clear, from the peculiar circumstances in which he was placed. An excellent and most intelligent surgeon, and shortly after a physician, were called to him; and about two o'clock in the afternoon, which must at least have been eight hours after taking the poison, Dr. G. Bird met these gentlemen. The patient was then fearfully collapsed; the surface cold and sweating; quite pale; the heart's action scarcely perceptible; pupils acting to light; no paralysis whatever, either of sensation or motion. Notwithstanding the intense exhaustion, the intellect was unimpaired. The most prominent symptom was the repeated and terrific vomiting of a brownish fluid. This vomiting was, however, peculiar, and perhaps hardly deserved that title, the patient really being seized with a kind of general spasm, during which he convulsively turned on his abdomen, and with an intense contraction of the abdominal muscles, he jerked out, as it were, the contents of his stomach, with a loud shout, depending, apparently, on the sudden contraction of the diaphragm. These exhausting and distressing symptoms had occurred every minute or two. On attempting to make him swallow any fluid, a fearful spasm of the throat took place, producing the distressing effects so well known in the hydrophobia from the bites of rabid animals: this was not produced by the sight of water, but the convulsive movements of the body, and emptying of the stomach, were excited by abruptly touching him. He was placed in a hot bath, afterwards removed to bed, covered with blankets, a large mustard poultice applied to the scrobiculus cordis, and an enema of turpentine administered. He remained in much the same state, the sedative effects of the poison on the heart gradually lessening, so that at nine o'clock the pulse was easily perceptible, although weak; the hydrophobic spasms were, however, then produced by every attempt to swallow, so that none of the medicines suggested for him could be made use of. It was therefore determined merely to administer enemata of beef-tea, with the yolk of an egg, and ten grains of laudanum, chiefly with the intention of procuring rest and giving support. He had a fearful night of exhaustion and spasm; intellect perfect, and even vivid, so as to enable him, whenever he recovered a little from his exhaustion, to carry on a conversation in the French language with an excellent and distinguished clergyman, who shared the task of soothing and watching him with his zealous surgeon. After this hard struggle with death, this very remarkable man emerged from the effects of the poison; and at two o'clock on the following day, when another consultation was held, he was regarded as convalescent. Dr. Golding Bird drew attention to the fact, that although at least *two grains and a half* of aconitina had been swallowed, yet that the majority of the poison must have been got rid of during the vomiting which followed the injury to the head, resulting from the fall. He also pointed out the remarkable train of symptoms developed, especially the convulsive vomiting and imperfect hydrophobia, as possibly being characteristic of the effects of the poison. For although they differed importantly from the effects of aconite root, with the exception of the sedative influence on the heart, still such a difference becomes intelligible when it is recollected that a pure alkaloid often differs materially in its physiological action from that of the plant from which it is an extract, as shown remarkably in the case of the alkaloid conia.—*Lond. Med. Gaz., Jan.* 1847.

HYGIENE.

65. *On the Food of Children.*—Dr. Thompson, in his "*Researches on the Food of Animals*," after some remarks on the relative quantities of nutritive matter, in various articles of diet, makes the following judicious observations on the appropriate food of children.

"Milk, in some form or other, is the true food of children, and the use of arrow-root, or any members of the starch class, where the relation of the nutritive to the calorifiant matter is 1 to 26, instead of being as 1 to 2, by an animal placed in the circumstances of a human infant, is opposed to the principles unfolded in the preceding table. In making this statement, I find that there are certain misapprehensions into which medical men are apt to be led at the first view of the subject. To render it clearer, let us recall to mind what the arrow-root class of diet consists of. Arrow-root and tapioca are prepared by washing the roots of certain plants until all the matter soluble in water is removed. Now, as albumen is soluble in water, this form of nutritive matter must in a great measure be washed away; under this aspect we might view the original root before it was subject to the washing process, to approximate in its composition to that of flour. If the latter substances were washed by repeated additions of water, the nitrogenous or nutritive ingredients would be separated from the starchy or calorifiant elements, being partly soluble in water, and partly mechanically removed. Arrow-root may therefore be considered as flour deprived as much as possible of its nutritive matter. When we administer arrow-root to a child it is equivalent to washing all the nutritive matter out of bread, flour, or oatmeal, and supplying it with starch; or it is the same thing approximately as if we gave it starch; and this is in fact what is done, when children are fed upon what is sold in the shops under the title of "Farinaceous Food,"—empirical preparations of which no one can understand the composition without analysis. Of the bad effects produced in children by the use of these most exceptionable mixtures, I have had abundant opportunities of forming an opinion, and I am inclined to infer that many of the irregularities of the bowels, the production of wind, &c., in children, are often attributable to the use of such unnatural species of food. It should be remembered that all starchy food deprived of nutritive matter is of artificial production, and scarcely if ever, exists in nature in an isolated form. The administration of the arrow-root class is therefore only admissible when a sufficient amount of nutritive matter has previously been introduced into the digestive organs, or when it is inadvisable to supply nutrition to the system, as in cases of inflammatory action. In such cases the animal heat must be kept up, and for this purpose, calorifiant food alone is necessary. This treatment is equivalent to removing blood from the system, since the wasting of the fibrinous tissues goes on, while an adequate reparation is not sustained by the introduction of nutritive food. A certain amount of muscular sustentation is still, however, effected by the arrow-root diet; since according to the preceding tables, it contains about one-third as much nutritive matter as some wheat flours. The extensive use of *oatmeal*, which is attended with such wholesome consequences among the children of all ranks in Scotland, is, however, an important fact, deserving serious consideration, and it appears to me, is strongly corroborative of the principles which I have endeavoured to lay down.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Removal of Toe Nail under the influence of Chloroform. By W. W. Valk, M.D.—At page 271 of the *American Journal of the Medical Sciences* for the first quarter of the present year, we notice a new process for the removal of toe nail, by Mons. Long, Surgeon to the Civil Hospital of Toulon. The operation, as practised by this gentleman, is said to be of easy execution, quick, and but slightly painful, requires no preparation, and but an ordinary spatula to effect it. Certainly the proceeding is far better than that recommended by the late Sir A. Cooper, and Baron Dupuytren, which is truly a "frightfully painful" process. Fortunately for humanity, we have now an agent of wonderful power, not only in modifying but completely suspending all sensation. Be the operation what it may, the surgeon can now command the patient's feelings, and render him as entirely unconscious of suffering as though he were dead. Such is the fact, and it is one of vast importance in the practice of medicine and surgery.

Mr. A. C. has suffered for the past three years from the growth of the nail on his left great toe into the flesh. It has at times been exquisitely painful, and had become deeply ulcerated along its inner margin, the flesh rising over the nail, and covering one-third of its surface. He had tried various expedients without success, and wished the nail removed, but dreading the pain, put off from time to time applying to us. We had candidly stated to him some months ago, that the removal of the nail was the only proper remedy. About ten days since, while he was sitting in our office, we remarked to him that we had just procured a bottle of *chloroform*, and if he could now make up his mind to submit to the operation, the nail could be removed without the slightest pain Upon this assurance he willingly assented to our proposition, and we removed the entire nail on the afternoon of the 22d inst.

Having desired Mr. C. to put off his boot and stocking, we seated him upon the sofa, poured *one drachm of the chloroform* upon the concave side of a piece of bleached sponge, and had it held over his mouth and nose by our assistant. In *fifteen seconds* complete insensibility was produced, during which time we placed our patient's foot between our knees, and took up a *small steel spatula* belonging to our pocket case. Holding the instrument precisely as though a pencil was to be sharpened, we separated the skin which covers over the root of the nail. Having gained its posterior border, the instrument was carried over towards the instep, the end being beneath the root of the nail. Then, by pushing forward the spatula between the nail and tissues, the evulsion was accomplished with perfect facility. The time occupied in doing this was just ten seconds. As soon as the nail was off, the sponge was removed from the face, and the patient left to recover himself, which he did in ten minutes. He asked how long he had been asleep, and said it seemed to him that *hours* had passed instead of minutes. His *unconsciousness* was as complete as though he were dead. Not a drachm of blood was lost, nor any pain felt *after* the operation was finished. The wound was dressed with lint and laudanum. Mr. C. having inhaled the chloroform shortly after dinner, the only unpleasant effects produced were sickness of stomach, vomiting twice, and a sensation of languor.

To us the gratification afforded was not less than that of our patient, and we rejoice that an agent is within our reach, so well adapted to accomplish such wonderful results. That chloroform will be safe in *proper* hands we have no reason to doubt, yet we fear that its use will be abused and bad consequences be sure to follow. As an anæsthetic agent, we regard it as greatly superior to ether, and at present but little more expensive. Its taste and smell are quite agreeable.

Our operation was precisely a copy of the one adopted by M. Long, and we can recommend it as decidedly better than any other.

Flushing, L. I., Feb. 26th, 1848.

Case of overdose of Morphia during Labour—Unconscious Delivery—Recovery. By Chas. Foulke, M. D., of New Hope. [Communicated in a letter to Prof. Geo. B. Wood.]

Dear Doctor—The following is the case of overdose of sulphate of morphia I mentioned in my note to you a few days back. I was, on the evening of the 26th of December, called to Mrs. R., of New Hope, aged 16 years, who was suffering from premature labour pains. She had been pregnant eight months. I found her pains had been brought on by a disturbance in the bowels, and proceeded to stop them by the use of morphia. I put in a teacup, one-half grain of morphia, to which I added five teaspoonfuls of water, gave one in the presence of her mother, who was taking charge of her, and directed her to give one teaspoonful every twenty minutes until the pains abated. In mistake I left a bottle of morphia containing two drachms all to one grain, on the table, and when the time for second dose came round, instead of giving the solution I had left, she took a teaspoonful of morphia out of the bottle, put a small quantity of water to it, and proceeded to give the solution until it was all taken, three hours in the administration of it. I afterwards weighed the remainder and found she had taken just 11½ grains in the three hours. Her strange conduct alarmed them, and I was sent for; being from home, I did not reach the house until four hours after she had taken the last dose. I found her, as she had been for some hours, crazy, with three or four holding her in bed; she had had some half-dozen slight convulsions, and during the interval was in this crazy condition.

Her face and lips livid; skin warm and moist; the pulse middling full, not sufficiently so to bleed I thought, and (accordingly abstracted no blood) itching and pricking of the skin intolerable; great contraction of the pupils, almost perfect blindness; little or no consciousness; constantly rubbing the nose, eyes, and face. In this condition she continued for five hours and a half after she had taken the last dose of morphia, and before there was the least tendency to sleep; it now came on and was profound. If left to herself she quickly fell into a state of profound stupor, and lost all consciousness, not breathing more than once in forty-six seconds. Upon examination I found labour was slowly going on; she evinced a slight restlessness about once in twenty minutes; no complaint of pain. The time being so long since she had the poison administered, I hoped but for little benefit from evacuating the stomach. Having no stomach-pump at hand, I administered two grains of tart. emetic and twenty grains of ipecac.; no effect being produced in twenty minutes, the dose was repeated; still no effect. I then at intervals of twenty minutes gave three or four large doses of ground mustard, but no emetic effect was produced, and she did not at any time throw up one particle of the morphia or anything else, and what is somewhat strange, no diarrhœa followed. I ordered snow dashed in her face, a bladder of the same to the head; mustard kept to the extremities; lifted up and down in bed; strong hartshorn held under the nose; when she would swallow, gave strong coffee and vinegar. This treatment was kept up for twenty-four hours without a moment's interruption; the breathing now became more natural, and she was permitted to sleep for a short time, and occasionally roused. After four hours' sleep she was able to see, and her mind was partially restored; she was anxious to know what had happened. The child had been born during this time, without her knowledge. That was also under the influence of the morphia; perfectly limber; breathing but about once in fifty seconds, and so continued for seven hours, when it gradually recovered without any aid, and is perfectly well. The mother also continued to do well, complaining of little but general debility, and in three days was as well as is usual after parturition; since quite well.

New Hope, *Jan.* 17*th*, 1848.

Nervous Irritation from Pressure by a Wart. By G. W. Foulke, M.D., of Carlisle, Pa.

Early in October, M——, a student of Dickinson College, applied to me, complaining of pain in his right arm, sometimes extending into his shoulder, and of stiffness of the elbow-joint, which was slightly flexed. He had been suffering with this affection some six weeks. The pain appeared to commence at the forearm near the wrist, pass along it to the bend of the elbow, thence along the inside of the arm, where it was most severe, and at times to extend into the shoulder. It was evidently along the track of the median nerve. Being constant, and increased by any effort to extend the forearm, accompanied by the sensation of a tense cord preventing extension, it caused no little uneasiness. He had made use of liniment of various kinds without any apparent benefit whatever; on the contrary, seemed to be getting worse. I had the arm stripped, and made a careful examination from the region of the axilla to the wrist, but no tumour or morbid change of any kind could be detected; the hand was then examined, when I found, near the middle of the middle finger directly over the digital branch of the median nerve upon the side next the index finger, a hard, deep-seated wart (verruca). I immediately gave it as my opinion, that this wart was the cause of the whole disturbance, and advised its removal by the knife. This was postponed by the patient until next day, when I removed it by making an elliptical incision round the base, then holding it up with the forceps and carefully dissecting it out, taking care not to injure the nerve. The cessation of pain was immediate, leaving simply some soreness, which was gone at the end of four days; and at the end of a week complete extension of the forearm could be made without the slightest pain. There has been no return of the affection.

This case may appear trifling; but I think it affords a useful lesson. It shows the importance of a knowledge of anatomy, and teaches us that a careful examination and attention to things apparently trifling, are not to be disregarded.

Amputation during spreading Gangrene. [Extract of a letter to the Editor from U. S. Thomas, M. D., of Longview, Tenn.]

In reading the review of the work of Chelius, in the January Number of the Journal, I discover that I can furnish a fact bearing on a dispute between that author and his translator, Mr. South, which is at your service. Some years back, a Mr. Garner, while driving a wagon, was thrown from his horse and dragged some distance, producing a compound dislocation of his ankle, and a slight fracture of the end of the tibia. The parts were adjusted, but mortification took place. When it had reached the knee, and was still progressing, Drs. Cooper and McDaniel, of Clarksville, were called in consultation. The whole of the thigh was emphysematous, and supposing that it indicated commencing gangrene, we were much embarrassed in coming to any decision. We supposed that the mortification would be fatal if not arrested, and doubted the propriety of cutting through a part with incipient gangrene. We finally concluded that the circumstances justified amputation. The limb was removed above the knee, and the man recovered without a bad symptom.

Congenital Enlargement of the Kidney. [Extract of a letter from Dr. G. J. Fisher of Mechlinburgh, N. Y., to Dr. Charles Woodward.]

Mrs. B——, after a somewhat tedious labour, gave birth to a living male child, at the full period of gestation; weighing seven and a half pounds. It presented nothing externally, calculated to attract attention, save an unusual enlargement of the abdomen. It lived but a few minutes after its extrusion from the uterus. On post-mortem examination, the renal organs were found of the usual form and colour, but measuring four and a half inches in length, and two in breadth. The weight of the right was five ounces, that of the left five ounces, five drachms, and eleven grains. The testes were in the abdomen below the kidneys. The bladder contained one and a half ounces of fluid.

DOMESTIC SUMMARY.

Report of the principal facts connected with a fatal case of Chloroform Inhalation, which occurred in Cincinnati.—The subject of the following report, Mrs. Martha G. Simmons, was at the time of her decease, thirty-five years and ten months old. Her husband states that she generally enjoyed excellent health; sometimes she was "nervous," and suffered occasionally with neuralgic pains about the face, and pain in the ear, apparently arising from decayed teeth. She also suffered at times from "sick headache." She was the mother of six children, five of whom are still living; her last accouchement occurred eight weeks previous to her death. Nothing unusual occurred, either at the time of parturition or subsequently; her health remained good, and the ordinary quantity of milk was secreted.

On the 23d of February, she dined at a quarter past 12 o'clock, and after dinner walked to a dentist's, a distance of about three-fourths of a mile, for the purpose of having some roots of teeth extracted. She arrived at the dentist's 15 minutes before 3 o'clock, appeared slightly flushed from the exercise of walking, but exhibited no alarm on account of inhaling the chloroform.

At 3 o'clock, 15 minutes after her arrival, Mrs. S. commenced inhaling chloroform. Mrs. Pearson and Mrs. Cross, two female friends, were present, and report the following as the events which occurred: The respiratory movements appeared to be free—chest heaving. While inhaling, *the face became pale.* At the expiration of about *one minute,* the instruments were applied, and four roots of teeth extracted. The patient groaned, and manifested what they regarded as evidences of pain, while the teeth were being extracted, although she did not speak, or exhibit any other sign of consciousness. As the last root came out—which was about two minutes from the beginning of the inhalation—patient's head turned to one side, arms became slightly rigid, body drawn somewhat backwards, with a tendency to slide from the operating chair. At this instant, Mrs. Pearson states that she placed her finger upon the patient's pulse, observed that it was feeble and immediately ceased to beat; respiration also ceased *about* the same time. The face, which was previously pale, now became livid, as also did the finger nails; the lower jaw dropped, and the tongue projected a little at one corner of the mouth, and the arms were perfectly relaxed. The females regarded her as being then quite dead. Efforts were made to resuscitate the patient—ammonia was applied to the nostrils, cold water dashed in the face, mustard, brandy, &c., applied. The patient was now removed from the operating chair and laid on a sofa; but she did not breathe, nor exhibit any sign of life, after being placed in the recumbent position.

Messrs. Meredith and Sexton, the dentists who operated in the above case, make the following statement:—The patient took the chloroform vapour from Morton's inhaler; it contained a sponge (perhaps one-third filling the glass globe of 4½ inches diameter), saturated with the liquid; to this 25 drops more were added when the patient began inhaling. Breathing at first slow; inhaled 12 or 15 times, occupying from a minute to 75 seconds. One of the dentists thinks she remained about *ten* minutes in the operating chair, and that life was not extinct until the end of that time; the other estimates the time at *five* minutes. One says he does not know whether she breathed after being laid on the sofa or not; the other thinks she did not. * * *

After the patient was laid on the sofa, medical aid was sought, and Dr. A. H. Baker was the first physician who arrived; this was probably thirty minutes after respiration had ceased. He immediately pronounced her dead, but proceeded to employ vigorous measures for resuscitation. The principal means employed consisted in artificial respiration, electro-magnetism, and external stimulants. Prof. Locke applied electro-magnetism, which caused active muscular contraction, but no evident effect on the heart. About an hour after the accident, Profs. Mussey and Lawson arrived, and aided in the further employment of the means above specified. Not the slightest sign of life was manifested after the arrival of Dr. Baker; the heart did not respond to the electricity, and the only change produced was some slight removal of the lividity of the countenance by the artificial respiration.

The *post-mortem examination* was made twenty-six hours after death. Present—Drs. Mussey, Lawson, Baker, and Mulford.

Examination by Dr. Lawson. Record by Dr. Mussey.

External appearances.—Lips livid, but face pale; bloody froth issuing from the mouth. Anterior surface of body and limbs free from discoloration, but posteriorly the skin presented a deep livid hue. Cornea dull and flaccid, and a dull-red horizontal belt extended across each eye, corresponding to the part which was unprotected by the lids; this belt was one-tenth of an inch in diameter, and made its appearance a few hours after death. Limbs quite rigid. Abdomen distended with gas. Patient rather muscular; weight probably from 140 to 150 pounds; hair dark; eyes dark brown; temperament sanguineo-bilious.

Brain.—Integuments contained but little blood. On removing the upper part of the skull, a larger quantity of blood than usual flowed from the vessels of the dura mater. Superficial vessels of the brain moderately distended; two or three ounces of fluid blood, intermixed with bubbles of air, flowed from the sinuses of the dura mater. General aspect, colour, and consistence of the brain normal.

Lungs.—Considerably but not intensely congested; crepitated freely at all points; no extravasation. Lining membrane of bronchia slightly congested, apparently the result of recent catarrh; deeply stained by the blood. Pleura at all points highly injected; six drachms bloody serum in the right, and two ounces in the left chest.

Heart and large Blood-Vessels.—Pericardium contained six drachms of bloody serum. Heart flaccid, *and all its cavities entirely empty;* inner surface of both ventricles and auricles deeply stained. Aorta and pulmonary artery empty; no blood in the cava within the chest, and a very small quantity in the part which lies within the abdomen; indeed, so small was the amount that it could not be appreciated until the vessel was opened. Lining membrane of all the blood-vessels deeply stained.

Abdomen.—One ounce and a half of bloody serum in the right hypochondrium. Stomach and intestines distended with gas. Partially digested aliment amounting to about three gills, was found in the stomach. Liver paler than natural, arising from the absence of blood; kidney considerably engorged. No marks of previous disease in any of the abdominal organs. Uterus and bladder normal; the former exhibited the usual condition of the organ two months after delivery.

Blood.—Fluid as water in every part of the body; not a coagulum was seen in any vessel. Examined with the microscope, the globules appeared altered somewhat in form; some were irregular in shape, and they seemed generally distended and more globular than is normal; they were also somewhat fragmentary, a part apparently having been ruptured; their number seemed somewhat diminished. The colour, in every part of the system, was that of dark venous blood.

Sympathetic nerve.—The sympathetic nerve, together with its larger ganglia, including the semilunar ganglion, presented a natural colour.

The Chloroform used.—The specific gravity of the chloroform employed was found to be 1·3. It contained some alcohol, but upon the whole is regarded as a fair article; it was the same which the dentists had previously used in numerous cases without any unpleasant results.—*The Western Lancet and Hospital Reporter*, March, 1848.

Inhalation of Sulphuric Ether in Traumatic Tetanus. By T. L. Ogier, M. D. (*Southern Journal of Medicine and Pharmacy*, Nov. 1847.) The subject of this case was a man 36 years of age, in whom tetanus was produced by a wound in the palm of the hand by a splinter; rigidity of the jaws commenced on the fourth day, and the next day, in addition to other remedies, the ether was administered by inhalation, and was continued at intervals during the progress of the case. The ether seems to have lessened the violence and frequency of the spasms; but did not arrest a fatal termination, which occurred on the 11th day.

Removal of a Foreign Body from the Duct of Wharton.—The entrance of a foreign body into the duct of Wharton, is so very rare an accident, that the following example of it, recorded by Dr. H F. Campbell, in the *Southern Med. and Surg. Journ.*, March, 1848, is worthy of notice.

"Julia, a nurse, aged 14 years, while engaged at work, with a pin in her mouth, felt pain under the tongue and endeavoured to remove the pin, but on feeling for it could only find the *point* protruding at the side of the frænum linguæ. Her efforts to extract it by the point caused it entirely to disappear: becoming alarmed, she called for assistance. On examination, there could not be seen the least trace of any foreign body whatever: she said that "the pin was under her tongue, and had gotten into the flesh *head-foremost*." It gave her no pain, except when disturbed with the fingers; the orifice of the Whartonian duct was patulous, and some saliva was flowing from it. On applying the finger to the floor of the mouth, the pin could easily be felt near to the base of the lower jaw—though from the distance to which the head had proceeded towards the cœcal extremities of this duct, it was impossible to protrude it by applying pressure from behind, and further, from the handling to which the parts had been subjected, the point had been pushed out of the direction by which it entered, and having pierced the side of the duct, was resting on the alveolar process. It was very movable, and receded on the slightest pressure.

Failing of its removal by manipulation, the following method was adopted:—Its exact situation being ascertained, the object together with the parts surrounding it, was seized by the fore-finger of the left hand in the mouth and the thumb in the digastric region, and pressed outward against the inner surface of the lower jaw under the alveolar projection; a tenaculum was then introduced from within outward through the mucous membrane, (avoiding the situation of the gustatory nerve which near this place crosses the duct,) so as to enclose the duct and hold the pin fixed; on elevating the tenaculum, the point of the pin became prominent about three lines posterior to the orifice of the duct. The mucous membrane and coats of the duct being cut through with a scalpel, the pin was removed with the dressing forceps by the *point* which protruded through the opening of the incision. A copious discharge of saliva followed its removal. The incision healed rapidly, and the patient recovered without any trouble. The pin was 1 1-4 inches in length, and of a proportionate thickness."

Case of Poisoning by Tartar Emetic. By J. T. Gleaves, M. D., of Green Hill, Tenn.—On the 27th Oct. 1847, I was called to see R., a young man of good constitution and temperate habits, aged about twenty-four years. The messenger informed me that he had left the patient an hour before pulseless, speechless, and to all appearance in a dying condition. I found him, on my arrival, lying on his back, breathing slowly and laboriously, his face pale and altered, features shrunken, eyes fixed and turned upwards, pupils dilated, surface cold. He appeared to be unconscious, but stated afterwards that he knew what was passing around him, but was unable to speak. The action of his heart was intermitting and extremely feeble, and no pulse could be felt at the wrists.

On inquiring into the history of the sudden illness, I learned that R. had taken a dose of tartar emetic, and that the quantity actually swallowed by him was a *tablespoonful.* This he did at three o'clock in the afternoon, and an hour and a half afterwards, although he had drunk freely of warm water, and tickled his fauces repeatedly with his fingers, no vomiting had occurred. Altogether, he vomited for the first three hours only two or three times, and the matter ejected was chiefly the warm water taken to favour the emesis. About two hours after he had swallowed the medicine, he felt an inclination to evacuate his bowels, and going into the yard for that purpose, found himself unable to return to the house. He was carried in and laid on a pallet before the fire. The alvine discharges continued, and I found him passing involuntarily liquid stools in great excess. The thin matter thus discharged had actually run from one end of the room to the other.

I ordered immediately laudanum, in a decoction of galls, by the mouth, and in the shape of injections; applied sinapisms to the spine, abdomen and extremities, and directed brandy toddy to be given liberally.

This course was adopted at six o'clock, three hours after the poison was taken. In about seven hours the purging ceased, and reaction was established; the patient was able to give a rational answer to questions, and to describe his sufferings. He complained of great thirst, and a sense of burning in the fauces, œsophagus, stomach and lower bowels. Applied a blistering plaster to the abdomen, and for the laudanum and gall nuts substituted coffee. Stomach grew extremely irritable; vomitings repeated, matter discharged being tinged with blood; tongue red and smooth. Directed leeches to be applied to the epigastrium; gum water; morphia and calomel in minute doses.

I left the patient at day light with pulse 120, quick and small, stomach painful on pressure, and ejecting everything taken.

22d. At five o'clock, P. M., I found my patient again cold, pulseless and speechless; abdomen tympanitic, and painful to the touch. The purging was arrested, but vomiting had continued through the day. Friction with flannels wet with warm spts. turpentine; sinapisms over all the body not blistered; flannel rollers saturated with spts. turp., to the extremities; hot applications to the feet. Reaction soon followed, and in an hour the condition of things was more promising than in the morning. Patient slept half an hour quietly: on waking, vomited a glairy matter mixed with blood. Mucilaginous drinks to be continued, with occasional small doses of morphia and sulph. quinine. Bowels to be moved by olive oil.

23d. At four o'clock, P. M., learned that my patient had rested well the night before. Still vomits occasionally; bowels have acted; the passages dark, offensive, and composed in part of grumous blood. Complains of sore throat and difficulty in deglutition. On examination, find his fauces covered with pustules, some of which, having discharged their matter, have left small superficial ulcers. Pustules around the blistered surface on the abdomen. Stomach and bowels still tender to the touch, but no tympanitis. Painful micturition; the urine copious and high coloured. Morphia, quinine, and mucilaginous drinks; diet, gruel or chicken broth. I left him at nine o'clock asleep, skin moist and warm, pulse soft and about 100; breathing improved.

24th. Patient improving; the whole surface of his body and neck studded with genuine *tartar emetic pustules.* Complains of no pain, except the burning and itching of the skin from the pustules.

25th. Patient has rested well since last visit. Alvine dejections still slightly tinged with blood. Pustules appearing on the extremities.

27th. Pustules on the body are healing, while those on the extremities are proceeding to maturity. Burning sensation very distressing. Some of the pustules on the body are as large as a plum, and the matter so deep-seated in some, as to require an incision to discharge it.

The patient went on steadily to improve. and the process of desquamation was completed about the end of the second week from the time of the appearance of the pustules. He is now in as perfect health as he enjoyed before taking the poison.

Since treating the above case, I have witnessed pustulation of the surface in the case of a pneumonic patient, to whom I administered freely the tartar emetic.—*Western Journ. of Med. and Surg.*, Jan. 1848.

[This case is remarkable not only from the large dose taken, without producing a fatal effect, the largest we believe on record; but also from the effects of the article on the surface of the body, a symptom not we believe before noticed. Trail (*Medical Jurisprudence*), mentions a case in which three drachms of tartar emetic were taken by mistake, but the dose proved fatal, and Lambert relates a case (*Casper's Wöchenschrift*) in which only *four grains* gave rise to violent pain in the abdomen, vomiting and purging, followed by severe convulsions, speechlessness, loss of pulse, coldness of skin, and every indication of immediate dissolution. The patient, however, slowly recovered. (See *Taylor on Poisons.*)]

Asclepias Tuberosa (*Pleurisy Root*).—Dr. T. T. Lockwood, in a paper in the *Buffalo Med. Journ.*, (March, 1848,) states that the greatest care is necessary in collecting and preserving this root, and advises that it should be collected about the 1st of Oct., cut in transverse slices, dried in the shade, and as soon as sufficiently dried, pulverized and bottled. This article, he says, "equalizes the circulation, produces copious expectoration and free diaphoresis, without inducing as much previous heat and excitement in the system as most other vegetable sudorifics. In the treatment of measles, this root is often of essential service. When the rash is tardy in making its appearance, the cough harsh and dry, attended with pain in the eyes and forepart of the head, the warm decoction of this root may be given with marked good effect. It is decidedly the most valuable medicine I have ever administered to bring out the rash in all eruptive diseases, after the phlogistic state of the system has been properly attended to.

"Owing to the intimate relation existing between the mucous membranes and the cutaneous exhalants, the pleurisy root is a most useful remedy in bronchitis, catarrh, and chronic diarrhœa of long standing. This root is especially serviceable in sub-acute and chronic rheumatic affections, when they are attended with a dry and harsh skin. In this complaint, the warm decoction may be given alternately with the tincture of colchicum. Opium in any form has a tendency to produce congestion of the brain, and to lock up the secretions; therefore, the asclepias is preferable to Dover's Powder in all those low forms of fever in which there is a tendency to cerebral congestion, and where we wish to promote expectoration. In acute inflammation of the parenchyma, or of the serous membrane of the lungs, it will not do to rely upon the pleurisy root alone, but we should resort at once to active depletion. Asclepias tuberosa possesses important medicinal properties. The warm decoction acts with as much certainty as a diaphoretic, as jalap does as a cathartic. It is peculiarly applicable to the diseases of children, as it possesses no disagreeable taste, or smell. I have frequently employed the pleurisy root in that continued and exhausting diarrhœa to which children are subject during the summer months, and generally with manifest advantage. In the latter complaint, the root should be boiled in fresh milk. Boil three drachms of this root in a quart of fresh milk down to one pint. Half an ounce of this is to be given every two or three hours. It generally excites a copious perspiration."

The best mode of exhibiting it, according to Dr. Lockwood, is in the form of decoction. One ounce of the root may be boiled in three pints of water down to a quart, and given in doses of half a gill every half hour. Dose of the substance ten to fifteen grains.

Experiments to prove that the Capillaries of the Lungs do not Anastomose.—By G. P. Cammann, M. D., (*New York Journ. Med*, Jan. 1848.)—*Experiment* 1. Water coloured with gamboge was injected into a branch of the pulmonary artery going to a section of lung, and it was found that a defined portion became moderately distended with the fluid; the water then commenced flowing from the accompanying bronchus and vein. The latter being secured by a ligature, the injection was forced in until this portion of lung became very tense. The injection continued confined to the same original extent of lung; the surrounding parts remained perfectly flaccid, and not a drop of the fluid escaped from any of the bronchi or veins.

Exper. 2. A similar injection was forced into a branch of the pulmonary vein. The fluid flowed only from the accompanying bronchus and artery. (The injection entered with such facility as to show that its course was not interrupted by any valves.)

Exper. 3. We moderately inflated a section of lung through a bronchial tube, and secured it by a ligature. The accompanying pulmonary artery was then injected, and it was found that the injection extended exactly as far as the inflated portion of lung, following closely the indentations so marked at the boundaries of the bronchial ramifications; the surrounding parts remaining flaccid.

Exper. 4. We substituted the vein for the artery with similar results.

The above experiments were repeated a number of times, proceeding from the larger arteries and veins to the more minute, and it was found that the injection of coloured water remained confined to the ramifications of the artery or vein under examination.

To confirm the preceding experiments, Dr. C. had recourse to the following series.

"*Exper.* 5. We injected a moderately-sized pulmonary artery with a strong solution of tartaric acid, and continued to fill the vessel, until from the accompanying bronchus and vein there streamed out a fluid which, when tested with bicarbonate of soda, proved to be the acid.

"*Exper.* 6. Having previously secured by ligature the accompanying bronchus and vein, we injected a branch of the pulmonary artery with the acid solution, until the portion of lung to which it was distributed became distended and tense. We then, in a similar manner, injected an adjoining branch of the artery with a strong solution of the bicarbonate of soda, and applied force almost sufficient to rupture the tissue. The two solutions were apparently in close contact, yet not the least chemical action ensued, although we kept the vessels thus distended until we were apprehensive that the chemicals acting through the tissues might lead into error. Neither in this nor in the former experiment did any liquid come from the neighbouring vessels.

"*Exper.* 7. When the two solutions were injected successively into the artery and vein accompanying the same bronchus, the lung was rent in every direction by the disengaged carbonic acid.

"*Exper.* 8. We pursued our investigations from the larger branches of the pulmonary vessels to the more minute, and carried them down as far as practicable.

"If anastomoses of the capillaries had existed, the effervescence from the soda and acid would have burst the pulmonary tissues as in experiment 7."

As the preparations from the above experiments were of a perishable nature, Dr. C. injected sections of lungs with mucilage of gum Arabic, coloured with indigo and then suspended them in alcohol. The injection passed only to the lobule or lobules to which the vessel was distributed.

In performing these experiments, Dr. C. states that certain precautions were necessary. "1. While cutting off the piece of lung for experiment, care was taken not to draw down the edges, lest the vessels to be injected should be on the apex of a cone, as the terminations of some of the lateral vessels might thus be above the incision. 2. The piece of lung was so held that the coloured water flowing from the accompanying bronchus and vein could not run into the neighbouring vessels. 3. The surface of the cut lung was wiped so dry that any oozing of fluid could be detected. 4. The injection was passed in very slowly, in order that none of the capillaries or tissues might be ruptured. The liquid was entered rather faster than it flowed from the accompanying vessels. 5. The bronchus and vein were not closed too soon, lest the air, which was, in some cases, forced before the injection, might rupture the capillaries. 6. On approaching as near as possible the periphery of the lung, and after inserting the tube, by compressing with spring forceps some of the branches of the vessels under examination, a very small portion of a lobule could be injected. 7. In the small lobes of the lungs of the sheep, where the vein runs superficially for an inch or two, it afforded great satisfaction to observe the coloured injection as it returned by the vein, and which continued to flow for some time before it escaped from the accompanying bronchus, proving that it must have passed through the capillaries; and if there had been any communication with the neighbouring capillaries, they would have become distended. 8. The warmest weather of summer was found to be the best season for making experiments and preparations. At this time of the year the lungs retain their elasticity, whereas they become dry and do not freely accommodate themselves to the injection after being hardened by a reduction of temperature and then subjected to artificial heat."

"We have thus ascertained," Dr. C. remarks, "that there is no anastomosis of the capillaries of one branch of an artery or vein, however minute, with the capillaries of any other branch in the pulmonary circulation; or in other words, that the capillaries of each minute branch of an artery or vein are perfectly isolated and independent of any other capillaries for a collateral supply of blood. We hold it, then, as proved, that there is no anastomosis between the capillaries of one lobule with that of another, nor, as far as analogy will warrant, between the capillaries of one minute or terminal artery with those of another. If any additional confirmation were required, it might be furnished by an examination of the preparations, when it could be seen that the interstitial cellular membrane, even of the most minute lobules, remains perfectly free from any discoloration from the injection."

The non-existence of any anastomosis between the capillaries of the lungs explains many points in the physiology and pathology of the pulmonary organs. "1st. We can easily perceive how, in pulmonary hemorrhage, the arterioles or capillaries having no collateral supply of blood to instantly rush in and keep them distended, readily contract, and allow the formation of coagula, which effectually prevent excessive loss of blood. 2. We can explain why, in small abscesses where there is not a false membrane between the parietes and healthy structure, there is not a continual flow of blood into the cavity, for as the capillaries discharge themselves, they shrink; although in large cavities where, from extent of surface, an exhausting hemorrhage might occur, nature provides a false membrane. 3. We can read understandingly the facts recorded by Bayle, Laennec, Andral, Barth, and indeed by all correct and skilful pathologists. We understand why pulmonary inflammation, congestion, apoplexy, gangrene, etc., are so exactly circumscribed and defined; and why in inflammation we do not, as in other tissues, always observe a gradation in the degree of engorgement. as we recede from the centre of disease. We find the correctness of Andral, when he describes inflammation as attacking isolated points of the pulmonary tissue; and when he speaks of even vesicular pneumonia, of which Grisolle observes, that 'Rilliet and Barthez seem to show that this lesion, described by Andral, is only vesicular bronchitis, in which a portion only of the pulmonary vesicles are inflamed and distended with puriform fluid.' We see reasons for Andral's statement, that 'even in those parts where the hepatization seems most perfect, it rarely happens that some small bronchial tube may not be found still permeable to air; and we sometimes find, that when the lobe of a lung which appeared uniformly hepatized throughout, is dried and carefully examined, we can discover some capillary tubes and air-cells which, instead of having their calibre diminished, are very considerably dilated, and are at the same time free from any appearance of congestion.' 4.

We can understand when we turn to physical signs, why the crepitous rale is so frequently accompanied by the respiratory murmur. We also ascertain why crepitous rale without respiratory murmur, shows very considerable engorgement; and when respiratory murmur is present, much of the lung is still healthy. We likewise advance a step towards an explanation of lobular pneumonia in children, and account for the frequent relapse and only apparent convalescence in pulmonary inflammation, from small lobules and vesicles remaining in a condition of active disease, after all physical and rational signs of functional derangement have disappeared. Finally, we comprehend the cause of the following phenomena observed by Stokes. "I have frequently seen," says he, "all the signs of solidification subside within two days, and have even observed great modifications in the course of a few hours. **** On this subject more extensive observation is wanting.

"We have thus demonstrated how, by being composed of an aggregate of isolated portions, the lungs are protected from the extension of disease; and how, but for this safeguard of nature, organs so essential to existence would be more liable to permanent injury, when a portion of their tissue is incapable of performing its functions."

Hydriodate of Potash in Hooping Cough.—Dr. W. A. McMurry states (*St. Louis Med. and Surg. Journ.*, March and April, 1848), that he has used the hydriodate of potash in hooping cough with great advantage. He employs the following formula:—℞: Hydriodat. potassæ gr. vj; Mucil. g. Arab. ℥vij; Syr. senegæ ℥ij; Tinct. lobeliæ ʒj. M. The dose of this mixture for a child of two years old is a teaspoonful four times a day.

New Liquid Adhesive Plaster.—We have been shown by a young medical student, Mr. Jno. P. Maynard, of Boston, a liquid adhesive substance, which he has introduced as a substitute for the common adhesive plaster, and over which it seems to us to possess many advantages, and to be applicable to many cases in which the latter is not. It is formed by treating cotton with nitric and sulphuric acids, then washing the substance thoroughly, and afterwards dissolving it in pure sulphuric ether.

In a letter to Dr. Jno. D. Fisher, read before the Boston Society for Medical Improvement (published in *Boston Med. and Surg. Journ.*, March 29th), Mr. Maynard states that he has used the adhesive liquid, and seen it used by his preceptor Dr. Whitney, in more than one hundred cases of surgery, some of them serious, and in all successfully.

"The mode," Mr. Maynard states, "in which it was used in these cases, varied according to the nature, size, and situation of the wound. In slight cuts, a moderately thick coating of the solution laid over the incised parts was, on becoming dry, sufficient to keep the lips of the wound in position till union took place; but in most instances it was employed in conjunction with straps of cotton and sheep-skin, and with raw cotton, forming with them strong, unyielding, adhesive straps, bandages and encasements; and after many experiments, I am convinced that this is the best and most effectual way in which it can be employed as an adhesive agent in surgery. The solution dries rapidly, and in a few seconds, by the evaporation of the ether it contains, it becomes solid and impermeable to water—and a strap moistened with it and glued to any part of the cutaneous surface, adheres to it with a tenacity that is truly surprising.

"In proof of this, I will mention the following facts. A strap of sheepskin, glued to the hand by a thin layer of the solution, nine lines long and one and a half wide, sustained a weight of two pounds. A second strap, attached to the hand by a layer of the substance, nine lines in length and three in width, sustained a weight of three pounds. A third strap, fixed to the hand by a layer of the liquid, twelve lines square, resisted the force of ten pounds without giving way; and a fourth strap of the leather, glued to the hand by a stratum of the solution, measuring one and three-fourths of an inch in length and one in width, was not separated from its attachment by the gravity of twenty pounds! These statements may appear incredible; but they are founded on exact and carefully performed experiments, and are true. No other known gum possesses such adhesive power as these experiments show this cotton gum to be endowed with. No adhesive plaster hitherto used in surgery is to be compared to it in this respect. It therefore can be made use of in cases in which the common adhesive plaster would be useless.

"The wonderful adhesive properties which my experiments proved it to possess, suggested the thought that it might answer the purpose of sutures in surgery. And an opportunity soon occurred to enable me to decide the fact that it would. I allude to the operation performed by Dr. Whitney, for the removal of a wen from the head. Fearing that an erysipelatous inflammation might arise in the scalp, in case he united the divided parts by sutures, Dr. W. shaved the hair from the raised scalp, and by means of the cotton solution he glued some short and narrow straps of sheep-skin on each flap, a short distance from their edge. These straps were then drawn towards each other until the edges of the wound were brought into close and exact union, and the free ends of the straps were fastened together by sutures. In this case the needle and thread were passed through inanimate leather instead of living flesh, causing no pain to the patient and no interruption of the process of healing. The wound healed favourably, and without the usual accidents necessarily occasioned by the presence of sutures in, and the operation for their removal from the parts. The happy result of this case convinced me that a means was now discovered which would enable the surgeon to do away with sutures, pins and needles, in most of the cases in which these are at present considered indispensable.

"Although unauthorized to do so, I must take the liberty, in this place, to mention the interesting fact that Dr. Comstock, of Wrentham, has recently employed this liquid as a dressing in a case of extensive laceration of the perineum, with a success that he thinks never attended any other mode of management. The dressings remained firmly attached and solid during the process of healing, notwithstanding they were for a time almost constantly covered by urine and mucus, and subject to being displaced by the movements of the patient."

The American Medical Association.—In compliance with the regulations, it is hereby announced that the meeting of the American Medical Association for the year 1848 will be held in Baltimore on the *first Tuesday in May* next.

For the information of medical bodies who propose sending delegates, the following extract from the regulations is re-published.

"Each local society shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and for every additional fraction of more than half of this number. The faculty of every regularly constituted medical college or chartered school of medicine, shall have the privilege of sending two delegates. The professional staff of every chartered or municipal hospital containing a hundred inmates or more, shall have the privilege of sending two delegates; and every other permanently organized medical institution of good standing shall have the privilege of sending one delegate."

The secretaries of the several societies, faculties, &c., are particularly requested at the earliest convenient date, to forward Dr. Dunbar, *in Baltimore*, a list of the delegates appointed by them.

Medical Journals are respectfully solicited to circulate the above announcement.

Alfred Stille, J. R. W. Dunbar, *Secretaries of the A. M. Association.*
Philadelphia, March 18th, 1848.

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Philadelphia, March, 1848.—1t

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Institutes and Practice of Surgery,	"	J. M. Wallace, M. D.
Physiology,	"	F. G. Smith, jr., M. D.
Anatomy,	"	J. M. Allen, M. D.
Obstetrics and Diseases of Women and Children,	"	J. F. Meigs, M. D.
Materia Medica and Therapeutics,	"	Francis West, M. D.
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March 24, 1848.

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Clinical instruction will be occasionally given during the year, and lectures on subjects not embraced in the University course, illustrated by drawings, plates, and preparations, will be delivered during the Summer months.

It is also in contemplation, to afford an opportunity for private dissection.

Any additional information may be obtained, on application to Dr. E. W. Theobald, No. 74 North Charles Street.

E. W. THEOBALD, M. D., No. 74 North Charles street.
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Baltimore, January 22, 1848.

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TO READERS AND CORRESPONDENTS.

The gentlemen to whom we entrusted the task of reviewing Dr. STILLE's Elements of General Pathology, and the late Dr. McCLELLAN's Principles and Practice of Surgery, have disappointed us; and we are compelled to postpone the Reviews of these works until our next number.

The following works have been received:—

On Bandaging and other Operations of Minor Surgery. By F. W. SARGENT, M. D. Phila , Lea & Blanchard, 1848. (From the Publishers.)

Manuals on the Blood and Urine. By JOHN WILLIAM GRIFFITH, M. D., F. L. S., &c., G. OWEN REES, M. D., F. R. S., F. G. S., &c., and ALFRED MARKWICK, M. D., &c., in one volume. Philada., Lea & Blanchard, 1848. (From the Publishers.)

Practical Observations on certain Diseases of the Chest, and on the Principles of Auscultation. By PEYTON BLACKISTON, M. D., F. R. S., &c. &c. &c. Philada., Lea & Blanchard, 1848. (From the Publishers.)

Elements of Natural Philosophy; being an experimental Introduction to the Study of the Physical Sciences. By GOLDING BIRD, A. M., M. D., F. R. S., F. L. S., &c. &c. &c., with 372 illustrations. From the revised and enlarged third London edition. Philada., Lea & Blanchard, 1848. (From the Publishers.)

A Dispensatory and Therapeutical Remembrancer; comprising the entire Lists of Materia Medica, Preparations and Compounds, with a Brief and Distinct Version of every Practical Formula, as authorized by the London Edinburgh and Dublin Royal College of Physicians, in the latest Editions of their Several Pharmacopœias; to which are subjoined copious relative tables, exemplifying approved forms under which compatible Medicines, &c., may be extemporaneously combined, &c. &c. &c. By JOHN MAYNE, M. D., L. R. C. S., Edinburgh. Revised with the addition of the Formula of the United States Pharmacopœia, &c. By R. EGLESFELD GRIFFITH, M. D., author of Medical Botany, &c. Phila., Lea & Blanchard, 1848. (From the Publishers.)

The Principles of Mechanics, of Machinery and Engineering. By JULIUS WEISBACH, Prof. of Mechanics and Applied Mathematics in the Royal Academy of Freiburg. First American Edition. Edited by W. R. JOHNSON, A. M., Civ. and Min. Eng. In two Volumes. Illustrated with 1000 engravings on wood. Vol. I. Theoretical Mechanics. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

Elements of General Pathology: a Practical Treatise on the Causes, Forms, Symptoms, and Results of Disease. By ALFRED STILLE, M. D., Lecturer on Pathology and the Practice of Medicine, &c. &c. &c. Phila., Lindsay & Blakiston, 1848. (From the Author.)

Chemical Technology; or Chemistry applied to the Arts and to Manufactures. By Dr. F. KNAPP, Prof. at the University of Giessen. Translated and Edited, with numerous notes and additions, by Dr. EDMUND RONALDS, Lecturer on Chemistry, at the Middlesex Hospital, and Dr. THOMAS RICHARDSON of Newcastle-on-Tyne. First American edition with notes and additions by Prof. W. R. Johnson. Vol. I. Illustrated with 214 engravings on wood. Phila., Lea & Blanchard, 1848. (From the Publishers.)

Lectures on the Theory and Practice of Physic. By JOHN BELL, M. D., &c., and WM. STOKES, M. D., &c. Fourth edition, revised and enlarged. Two vols. 8vo. Phila., Edward Barrington & George D. Haswell, 1848.

Lettres sur la Lithotritie ou l'art de Broyer la Pière. Par le Docteur CIVIALE. Sixième lettre. Paris, 1848. (From the Author.)

Annuaire de la Mortalité Genevoise, publié sur l'invitation du conseil de santé.

Par le Docteur Marc d'Espine, Membre du Conseil de Santé, &c. &c. Troisième publication. Années 1844 et 1845. Genève, 1847. (From the Author.)

Mémoire sur les Rétrécissements organiques de l'Urètre, et sur l'emploi de nouveaux instrumens de Scarification et d'Incision, pour obtenir la cure radicale de cette maladie, suivi d'un appendice sur le traitement des rétrécissements par la Malaxation; par Martial Dupierris, D. M. et C. Nouvelle edition. Paris, Germer Baillière, 1847. (From Dr. John B. Beck.)

Proceedings of the Annual Convention of the Connecticut Medical Society, May 1848, together with a list of Members and the Annual Address. Hartford, 1848. (From Dr. Russel.)

Notes on the Theory of Human Existence, comprising remarks on Vitality, the Mind, and incidentally the Soul. The whole being an exposition of the Nature, Powers and Destiny of Man. By Thomas L. Wright, M. D. Cincinnati, 1848. (From the Author.)

The Physiological Effects of Alcoholic Drinks, from the British and Foreign Medical Review of Dr. Forbes; with Documents and Records of the Massachusetts Temperance Society, illustrating the origin of the Temperance Reformation, and its progress in the State of Massachusetts. Boston, 1848. (From Dr. J. C. Warren.)

Address delivered before the Alabama State Medical Association at its first regular session at Selma, March 9th, 1848. By H. V. Wooten, M. D. Published by the Association. Montgomery, Ala., 1848. (From the Author.)

The Reciprocal Relations of Physicians and Clergymen: a Speech delivered at the Anniversary Dinner of the "New York Society for the relief of Widows and Orphans of Medical Men," on Wednesday, Nov. 17th, 1847. By the Rev. John M'Krebs, D. D. Published by the Stewards. New York, 1847.

Lectures on Yellow Fever, its Causes, Pathology, and Treatment. By John Hastings, M. D., U. S. Navy. Phila., Lindsay and Blakiston, 1848. (From the Publishers.)

Ether and Chloroform: a Compendium of their History and Discovery. By Henry J. Bigelow, M. D., one of the Surgeons of the Mass. Gen. Hospital. Boston, 1848. (From the Author.)

Report of the Chicago Retreat for the Insane. By Edward Mead, M. D., Superintendent. Chicago, 1848. (From the Author.)

State of the Accounts of the Pennsylvania Hospital for the year ending, fourth month, 22d, 1848, as adjusted by the Managers, and laid before the Contributors at their Annual Meeting, fifth month, 1st, 1848. Philada., 1848.

Fifth Annual Report of the Mount Hope Institution near Baltimore, for the year 1847. By Wm. H. Stokes, M. D. Baltimore, 1848.

Transactions of the Belmont Medical Society for 1847. Published by the Society. St. Clairsville, Ohio, 1848.

A case of Typhus or Ship Fever, with Remarks. By William Ingalls, M. D., &c. &c. Boston, 1848.

Remarks on Deodorization and Disinfection, and on Sir William Burnett's Disinfecting Fluid, the Solution of the Chloride of Zinc. By F. Stratton, M. D., Surgeon Royal Navy, Particular Service. Montreal, 1848. (From the Author.)

Address delivered before the State Agricultural Society, Members of the Legislature, and of the Medical Seciety of the State of New York, at the Capitol in Albany, Feb. 1848, on the Food of Plants. By Alex. H. Stevens, M. D., &c. &c. Albany, 1848. (From the Author.)

Valedictory Address to the Graduating Class of the Medical Department of Pennsylvania College, March 7th, 1848. By William R. Grant, M. D., Prof. of Anatomy and Physiology. Published by request of the Class. Philada., 1848. (From the Author.)

An Introductory address delivered before the Medical Class of the Med. School of Maine, March 13th, 1848. By Edmund R. Peaslee, A. M., M. D., Prof. of

Anatomy and Surgery. Published by the Class. Brunswick, 1848. (From the Author.)

Annual Address read before the Northern Medical Association of Philadelphia, January 6th, 1848. By Arnold Naudain, M. D. Philadelphia, 1848. (From the Author.)

An Address delivered before the Society of Alumni, of the Medical Department of Hampden Sidney College. By Chas. P. Johnson, M. D. Published by order of the Society. Richmond, 1848. (From the Author.)

Nineteenth Annual Report of the Inspectors of the Eastern State Penitentiary of Pennsylvania. Philada., 1848. (From Dr. Robert A. Given.)

By-Laws, adopted by the Managers of the New Jersey State Lunatic Asylum, at Trenton, also the Act to provide for the Organization of said Asylum, and for the care and maintenance of the Insane; passed March 23d, 1847: and the supplement to the same act passed March 9th, 1848. Trenton, 1848. (From Dr. H. A. Buttolph, Superintendent and Physician.)

Annual Catalogue of the Medical Department of the University of the State of Missouri, (session of 1847–48,) and circular for the ensuing session, with an Address of Dr. Samuel Cartwright, delivered before the class, and published by their request. St. Louis, 1848. (From the Faculty.)

Catalogue of the Second Session of the Memphis Medical College. Session, 1847–48. Memphis, Tenn., 1848.

Catalogue of Medical Graduates in the Univ. of Penn., at the commencement held April 8th, 1848.

University of New York Medical Department. Annual announcement of Lectures. Session of 1848–49. New York, 1848.

A Lecture Introductory to a Course of the Institutes of Medicine and Materia Medica, for Session of 1847–48. By Martyn Paine, A. M., M. D., Professor of Inst. of Medicine and Materia Medica, &c. &c. &c. New York, 1847. (From the Author.)

Lecture Introductory to a Course on Obstetrics and the Diseases of Women and Children, delivered April 10, 1848. By Wm. Harris, M. D. Philadelphia, 1848. (From the Author.)

A Defence of Dr. Charles T. Jackson's claims to the Discovery of Etherization. Containing Testimony disproving the Claims set up in favour of Mr. W. T. C. Morton, in the Report of the Trustees of the Massachusetts General Hospital, and in No. 201 of Littell's Living Age. By Joseph L. Lord and Henry E. Lord. Boston, 1848. (From Dr. C. T. Jackson.)

The Ether Controversy. Vindication of the Hospital Report of 1848. By N. J. Bowditch. Boston, 1848. (From the Author.)

The following Journals have been received in exchange:—

Revue Médico-Chirurgicale de Paris; sous la Direction de M. Malgaigne M. D. P. Feb., March, April, 1848.

Monthly Journal and Retrospect of the Medical Sciences. April, May, 1848.

Provincial Med. and Surg. Journ. Edited by R. J. N. Streeten, M. D., F. L. S. Foreign Editor, W. H. Ranking, M. D. March, April, May, 1848.

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THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR JULY, 1848.

Art. I.—*Vital Statistics of Philadelphia, for the decennial period from 1830 to 1840.* By Gouverneur Emerson, M. D.

Various causes operating extensively upon the destinies of the human race, could never be recognized, unless viewed in their effects upon large masses. The presence of malign influences would often escape notice, nor could the extent of the evils produced by them, ever be accurately ascertained, without the aid of statistical investigations. It is frequently objected against these, that so many erroneous items are included in the data. But the effectual answer to such objections is, that in the multitude of observations, the errors existing here and there, are neutralized and lost in the great mass of facts accumulated.

In the numbers of this Journal for November 1827, and November 1831, we presented estimates of the mortality, and other interesting matters relating to the changes of the population of Philadelphia, during a period of twenty-four years. We now embrace within our calculations an additional period of ten years, bringing the subject up to the last general census of 1840. This, with our former estimates, includes a period of no less than thirty-four years, and exhibits the vital statistics of Philadelphia and the changes of its population with the mortality from each particular disease, at various ages for that period.

General Population.—The total population of the city of Philadelphia, and adjoining Corporations and Districts making returns of interments to the Board of Health, was, in 1840, according to the census of the general government made in that year, 226,693—an increase of 57,255 within the previous ten years.

Of the entire population, 105,792 were males, and 120,901 females.

TABLE A.

White Population of the City of Philadelphia and adjoining Districts, from which returns of Interments are made. From the United States Census of 1840.

WHITE MALES.

	Under 5 years.	5 yrs. and under 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90	90 to 100	100 and upwards.	Total.
City	5667	4027	3423	4128	8963	5582	3025	1390	741	290	74	7	11	37328
Kensington	2190	1486	1101	955	2023	1611	896	383	164	62	10			10881
N. Liberties	2591	1934	1459	1682	3463	2260	1291	692	274	96	18	7	6	15778
Unincorporated N. Liberties	295	203	185	185	326	250	121	81	33	12	2	2		1659
Spring Garden	2089	1600	1192	1414	2731	1752	872	432	168	48	14	3		12315
Penn Township	245	219	164	162	332	278	137	65	44	10	3			1659
Southwark	2190	1508	1197	1180	2578	1907	1038	485	204	81	18	3	1	12390
Passyunk	154	98	116	90	154	104	63	38	22	3	5			847
Moyamensing	1053	649	451	427	963	854	487	252	101	26	9	2	1	5275
Total white males	16474	11729	9288	10223	21533	14598	7930	3818	1751	628	153	24	19	98168

WHITE FEMALES.

	Under 5 years.	5 to 10	10 to 15	15 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90	90 to 100	100 to 110	Total.
City	5566	4279	4221	5660	11724	6425	3700	2206	1292	570	171	15	1	45830
Kensington	2041	1406	1103	1014	268	1460	862	468	250	118	27	4		9021
N. Liberties	2628	1910	1676	2131	3901	2266	1451	932	433	268	78	13	1	17688
Unincorporated N. Liberties	239	206	196	148	338	198	114	73	39	22				1573
Spring Garden	2037	1621	1472	1856	3312	1836	1014	590	273	115	33	8		14169
Penn Township	283	209	164	162	311	212	86	70	34	20	5		1	1557
Southwark	2164	1556	1293	1535	3045	1771	1165	714	437	175	47	6	1	13909
Passyunk	131	100	78	77	160	78	44	24	14	18				724
Moyamensing	1011	643	533	580	1172	808	389	257	122	63	15	5	2	5600
Total white females	16100	11930	10736	13163	24231	15054	8825	5334	2894	1369	376	51	6	110069
White males	16474	11729	9288	10223	21533	14598	7930	3818	1751	628	153	24	19	98168
Total white males and females	32574	23659	20024	23386	45764	29652	16755	9152	4645	1997	629	75	25	208237

White Population.—The table in our present series, marked A, exhibits the numbers of the white inhabitants at thirteen periods of life. Of the sum total, 208,237, the males constituted 98,168, whilst the females amounted to 110,069. This shows a total increase of 55,068, of which sum 24,621 were males, and 30,447 females.

The numbers of white males and females, compared at the different ages designated, stand thus:

	Under 5 years	Between 5 & 10	10 and 15	15 and 20	20 and 30	30 and 40	40 and 50	50 and 60	60 and 70	70 and 80	80 and 90	90 and 100	100 and upwards
Males	16,474	11,729	9,288	10,223	21.533	14.598	7.930	3,818	1,751	628	153	24	19
Females	16,100	11,930	10,736	13,163	24.231	15,054	8,825	5,334	2,894	1,369	376	51	6
Excess of females		201	1,448	2,940	2,698	456	895	1,516	1,143	741	223	27	

Under the first and last periods only, do the males exceed the females, whilst in all the others, the female preponderance is very great, especially after the 10th year.

The respective proportions of the white males and females, at the several periods of life designated in the table, are as follows:

Of and under 5 years, the males exceed the females				2.27	per cent.
Between	5 and 10 years the females exceed the males			1.68	“
“	10 and 15 “	“	“	13·50	“
“	15 and 20 “	“	“	22.38	“
“	20 and 30 “	“	“	11.13	“
“	30 and 40 “	“	“	3.03	“
“	40 and 50 “	“	“	10.14	“
“	50 and 60 “	“	“	28.42	“
“	60 and 70 “	“	“	39.49	“
“	70 and 80 “	“	“	54.12	“
“	80 and 90 “	“	“	59.30	“
“	90 and 100 “	“	“	52.94	“
“	100 years and over the males exceed the females			68.42	“

It thus appears that the excess of males at birth, usually about 7 per cent., has disappeared before the 10th year, at which period an enumeration of the sexes living, between 5 and 10 years of age, exhibits a *female* preponderance of 1.68 per cent. By the 15th year, the female excess has attained about 13½ per cent., and at the next period of life, including the years between 15 and 20, the female preponderance has actually reached 22.38 per cent. It now declines, so that between the 20th and 30th years, the females exceed the males only 11.13 per cent., whilst between the 30th and 40th years, the female excess has declined to 3.03 per cent. Now, however, it again begins to increase, and this goes on pretty steadily through the other ages designated, until, passing the centenary period, the male preponderance, among the few left, returns as at birth.

It is interesting to compare these results with others obtained from the previous census, and to mark the general correspondence and occasional striking differences existing between the proportions of males and females at the different periods of life, in the two decennial periods.

The following statement will show the general concurrence and particular differences.

				1830.	1840.	
Of and under 5 years, male excess				4¾	2¼	per cent.
Between	5 and 10 years	“		1⅔		“
“	5 and 10 years, female excess				1⅔	“
“	10 and 15	“	“	8	13½	“
“	15 and 20	“	“	7	22⅓	“
“	20 and 30	“	“	10	11	“
“	30 and 40	“	“	7	3	“
“	40 and 50	“	“	9	10	“
“	50 and 60	“	“	25	28	“
“	60 and 70	“	“	37	39½	“
“	70 and 80	“	“	48	54	“
“	80 and 90	“	“	44	59	“
“	90 and 100	“	“	28	53	“

TABLE B.

Coloured Population of the City of Philadelphia and adjoining Districts, from which returns of Interments have been made. From the Census of 1840.

COLOURED MALES.

	Under 10 years	10 to 24	24 to 36	36 to 55	55 to 100	100 and upwards	Total
City	940	1029	1130	696	188	3	3986
Kensington	71	45	26	47	11	—	200
Northern Liberties . . .	132	93	103	67	31	—	426
Unincorporated N. Liberties .	3	12	12	9	2	—	38
Spring Garden . . .	107	187	205	133	31	2	665
Penn Township . . .	17	14	15	9	3	—	58
Southwark	153	121	122	118	46	3	563
Passyunk	2	6	5	3	1	—	17
Moyamensing . . .	427	409	421	309	104	1	1671
Total coloured males . .	1852	1916	2039	1391	417	9	7624

COLOURED FEMALES.

	Under 10 years.	10 to 24	24 to 36	36 to 55	55 to 100	100 and upwards	Total
City	1124	1901	1921	1156	414	7	6523
Kensington	54	55	54	30	19	—	212
Northern Liberties . . .	122	168	174	81	37	—	582
Unincorporated N. Liberties .	—	11	6	6	3	—	26
Spring Garden . . .	111	226	204	119	42	—	702
Penn Township . . .	18	13	15	18	4	—	68
Southwark	154	184	155	141	52	—	686
Passyunk	2	1	2	—	1	—	6
Moyamensing . . .	400	598	569	334	125	1	2027
Total coloured females . .	1985	3157	3100	1885	697	8	10,832
Total coloured males . .	1852	1916	2039	1391	417	9	7,624
Total coloured males and females	3837	5073	5139	3276	1114	17	18,456

Coloured Population.—This is exhibited in Table B, drawn from the United States census of 1840. It constitutes about 7.8 per cent. of the total population. The whole amount is 18,456, of which 7,624 are males and 10,832 females. The increase within the decennial period is 3,812, or about 20 per cent., a ratio of about $2\frac{1}{3}$ per cent. per annum. This, it will be observed, is much below the rate of multiplication in the white population, where it is about $3\frac{1}{2}$ per cent.

The different periods of life designated in the census of the blacks are only six, and the disparity subsisting between the proportions of the sexes at each of these is very remarkable, differing greatly from the proportions among the whites alone, as will sufficiently appear by a comparison of the following statements with those previously given.

Estimate of the Proportions of Coloured Males and Females.

	All of and under 10 yrs.	Between 10 and 24 yrs.	24 and 36	36 and 55	55 and 100	100 and upwards.
Males - -	1852	1916	2039	1391	417	9
Females - -	1985	3157	3100	1885	697	8
Female excess -	133	1241	1061	494	280	

Thus, at the 10th year, the females exceeded the males about

	In 1840.	*In* 1830.
	6½ per cent.	5½ per cent.
Between the 10th and 24th years	39 "	38 "
" " 24th and 36th years	34 "	27 "
" " 36th and 55th years	26 "	14 "
" " 55th and 100th years	41 "	27 "

The great disparity between the sexes among the coloured population in the city of Philadelphia, and which appears to have greatly increased, especially in the more advanced ages, I have formerly attempted to account for by ascribing it to the more frequent demand for the services of females than exists in the country, together with the greater mortality among the males. Of those, however, who reach the extreme duration of life, the males predominate, as we have observed to be the case with the white centenarians.

Births.—In our last series of statistical investigations, published in this Journal for November, 1831, we gave the births for each year of the preceding decennial period. We are now enabled to add ten years more, making in all twenty-one consecutive years, since the record of births was commenced in Philadelphia. Table C exhibits the births in each year of the last decennial period, from 1831 to 1840, inclusive, with the respective proportions of the sexes, totals, and excess of males over the females at birth.

According to the returns made to the Health Office from the various practitioners of midwifery whose names are registered, the grand total of births within the city of Philadelphia and adjoining corporations during the ten years, was 76,536. Of this number 39,512 were males, and 37,024 females, being an excess of males over the females of 6.29 per cent., a ratio rather lower than that furnished by former periods. The cause of this diminution in the excess of male children may probably be referred to the operation of unusual circumstances within the period, which will be the subject of further investigation.

TABLE C.—*Births per annum in Philadelphia, from* 1831 *to* 1840 *inclusive, with the respective proportions of the Sexes.*

Year.	Males.	Females.	Totals.	Excess of male births.
1831	3787	3555	7342	232
1832	3834	3419	7253	415
1833	3840	3802	7642	38
1834	3937	3635	7572	302
1835	4041	3815	7856	226
1836	3864	3544	7408	320
1837	4235	3953	8188	282
1838	3982	3798	7780	184
1839	3769	3493	7262	276
1840	4223	4010	8233	213
Totals	39,512	37,024	76,536	

Mortality.—In addition to the ordinary causes of mortality, Philadelphia has, within the decennial period from 1830 to 1840, been twice visited by a pestilential disease, unknown in the previous history of the country. The total mortality during the ten years, from all causes, amounts to 49,678.

The proportion of deaths to the total population, will be seen by referring to Table D. It has varied, with each year, from 1 in 28 to 1 in 49.

The greatest mortality was in 1832, the first year of the malignant cholera, of which disease the deaths reported amount to 1,021, the whole from all sources being 6,425. The *average* annual mortality, compared to the general population, is about one death in 41 inhabitants.

TABLE D.—*Exhibiting the deaths in the city of Philadelphia and adjoining districts in each year from* 1830 *to* 1840 *inclusive, with the proportions to the general population, and also those of the white and coloured populations separately (still born excluded).*

Year.	Mortality of whites alone.	Mortality of the colored population.	Total population.	Col'd population.	General mortality, still-born excluded.	General mortality to total population.	Proportion of deaths among the whites alone.	Death of blacks alone.
1831	4197	446	174,541	14,985	4623	1 in 37.89	1 in 39.60	1 in 33.60
1832	5754	678	179,694	15,336	6425	" 28.21	" 28.83	" 22.65
1833	3625	450	185,000	15,876	4128	" 45.36	" 47.32	" 35.28
1834	4281	488	190,461	16,285	4765	" 40 69	" 41.46	" 33.37
1835	4793	534	196,084	16,667	5358	" 37 39	" 38.32	" 31.21
1836	4340	697	201,974	17,057	5022	" 41.25	" 43.80	" 24.47
1837	4356	533	207,834	17,456	4881	" 43.89	" 45.16	" 30.75
1838	4525	611	213,970	17,865	5118	" 43.27	" 45.00	" 29.23
1839	4258	549	220,287	18,293	4765	" 48.08	" 49.48	" 31.30
1840	4176	477	226,693	18,456	4593	" 49.37	" 52.28	" 38.68
					Averages.	41.15	43.12	31.05

The following shows the mortality in Philadelphia, in 1840, compared with the population at different periods of life, as represented by the United States census for that year.

	Under 10th yr.	Between 10 and 20.	Between 20 and 30.	Between 30 and 50.	Between 50 and 100.	100 yrs. and upwards.
Total Pop.	60,070	48,473	50,903	49,683	17,612	42
Mortality	2,227	195	496	873	795	7

By this statement, it appears that, in 1840, when the census was taken by the general government, the mortality under the 10th year, compared with the population of and under that age, was 3·7 per cent., or 1 death to about 27 of the population at the age designated. The deaths between 10 and 20, were only 1 in about 260 of the inhabitants of that period of life! Those between the 20th and 30th years of age, were 1 in about 102; between the 30th and 50th years, 1 in about 57; between the 50th and 100th years, 1 in 22; whilst those of and over 100, were 1 in 6 of the inhabitants.

It is proper to observe, that, in estimating the proportions of inhabitants at particular ages, some difficulty exists in consequence of the whites and blacks being enumerated in the census at different ages. Up to the 10th year, the respective proportions are correctly given; but after that age, the column in our statement representing the population between 10 and 20, contains the coloured from 10 to 24, the column of 20 to 30, contains the coloured from 24 to 36, that from 30 to 50, contains the coloured from 36 to 55, and that from 50 to 100, contains the coloured from 55 to 100. As the coloured population constitutes so small a proportion, this irregularity cannot materially affect the results of our calculations.

White Population.—Taking the white inhabitants separately, the average mortality was 1 in 43, the lowest having been 1 in about 29, in 1832, and the highest 1 in 52, in 1840. Notwithstanding the ravages made by two visitations of malignant cholera, the *average* mortality has been considerably lower than for the preceding decennial period, when it was 1 death in 38·85 of the general population.

Coloured Population.—The proportional mortality among the coloured population is given in Table C. Though still considerably more than that of the whites, it is much less than during the past decennial periods. The general average for the 10 years, from 1830 to 1840, was 1 in 31—the greatest proportion having been in 1832, the first year of the malignant cholera, when the deaths were about 1 in 22½ of the coloured inhabitants, —the highest in 1840, when the average was about 1 in 38½. This is strongly and most favourably contrasted with the results of the preceding decennial period, when the average was about 1 in 21, or double the rate of mortality of the whites.

It will thus be seen, that even the increased mortality occasioned by the visitation of an awful pestilence, falls far short of what has occurred at previous periods. In the years 1821 to 1826, inclusive, the annual deaths of the coloured population of Philadelphia, averaged 1 to every 19·8 inhabitants, and during three years of the period, 1 in 15, 1 in 16, and 1 in 17, of the coloured population were swept off.* At present, instead of being double that of the whites, the average ratio of mortality between 1830 and 1840, is 1 in 31 of the coloured inhabitants, that of the whites being 1 in 43. A very great amelioration in the condition of the coloured population is thus shown to have taken place.

Particular Causes of Mortality.—The particular diseases, and other causes, producing the mortality in Philadelphia during the decennial period from 1831 to 1840 inclusive, are designated in Table F. The arrangement is in accordance with the plan of a nomenclature and classification recommended for general adoption by the American Medical Association.

It will be observed, that occasionally no deaths are set down in the columns appropriated to some of the causes embraced in this plan. But it is not to be inferred that none occurred from such sources, since they have doubtless been included under other heads in the bills of mortality. Thus, in the 5th class, there are no deaths recorded from pericarditis, which is well known to be a disease frequently fatal. The deaths from it have probably been arranged, in the general bill, under some other head, or, rather, heads, such as inflammation of the heart, or pleura, or breast, or lungs.

A hiatus of several years will be found in Class 4th, under the head of pleurisy, the deaths from which have undoubtedly been reported under other names, either as pneumonia, bronchitis, or some other acute inflammation of the chest. It is to be hoped that more accuracy may, in future, characterize the certificates of physicians, as well as the annual statements made by the Board of Health.

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* See this Journal for November, 1827.

TABLE E.—*Particular Diseases and sources of mortality in Philadelphia, during ten years, showing the amount for each year,* 1831 *to* 1840 *inclusive.*

I. ZIMOTIC, EPIDEMIC, ENDEMIC, AND CONTAGIOUS.

	1 Cholera.	2. Cholera Infantum.	3. Croup.	4. Diarrhœa.	5. Dysentery.	6. Erysipelas.	7. Fever, Intermittent.	8. Fever, Remittent.	9. Fever, Typhus.	10. Hooping Cough.	11. Influenza.	12. Measles.	13. Scarlatina.	14. Small Pox.	15. Syphilis.	16. Thrush.
1831	18	302	127	81	121	16	15	98	92	67	24	23	200	18	4	6
1832	1021	366	110	172	78	21	15	94	210	58	41	118	307	43	8	6
1833	9	197	95	87	44	17	7	80	84	53		1	61	168	7	9
1834	204	377	81	123	70	20	3	58	61	48	3	7	83	212	9	8
1835	27	275	128	129	114	15	3	66	42	106		248	305	106	3	9
1836	11	212	115	136	95	24	13	85	220	94		4	240	86	7	9
1837	24	248	104	100	119	20	5	57	107	40		49	205	81	5	13
1838	13	382	101	144	141	22	3	63	70	27		123	134	45	3	13
1839	21	230	83	136	120	19	1	47	47	191		3	225	5	14	
1840	23	180	79	119	118	7	8	39	63	4		2	244	63	7	
	1371	2769	1023	1227	1020	181	73	689	996	688	68	578	2004	827	67	73

II. DISEASES OF UNCERTAIN SEAT. SPORADIC DISEASES.

	17. Abscess.	18. Atrophy.	19. Cancer.	20. Debility.	21. Dropsy.	22. Gout.	23. Hemorrhage.	24. Infantile Diseases.	25. Inflammations.	26. Malformations.	27. Mortification.	28. Scrofula.	29. Sudden Deaths.	30. Tumors.
1831	21	29	19	293	367	7	33		780		24	28	79	[illegible]
1832	19	81	28	259	366	3	30		842		22	25	52	
1833	21	108	95	189	302	3	26		641	8	20	12	23	1
1834	12	96	35	207	353	1	34		731	12	24	7	21	2
1835	30	112	31	178	360	4	40		886	15	35	26	19	2
1836	23	98	28	194	317	7	30		817	10	30	19	19	
1837	21	116	27	165	347	1	22		859	12	28	24		
1838	29	152	41	160	332	3	25		883	17	39	27		
1839	7	149	38	125	357	3	28		888	10	12	18		6
1840	23	125	46	142	293	4	40		846	8	16	22		1
	206	1066	388	1912	3394	36	308		8237	92	250	218	213	20

III. OF THE NERVOUS SYSTEM.

	31. Apoplexy.	32. Cephalitis.	33. Chorea.	34. Convulsions.	35. Delirium Tremens.	36. Epilepsy.	37. Hydrocephalus.	38. Insanity.	39. Paralysis.	40. Tetanus.	41. Brain, Diseases of.
1831	60	89	1	277	110	12	208	25	59	2	
1832	78	102	1	342	150	7	187	14	47	3	
1833	55	72	0	266	123	15	170	6	40	0	18
1834	76	104	1	280	90	12	198	4	46	9	27
1835	71	106	2	351	62	13	214	13	42	10	38
1836	88	96	1	283	90	8	162	19	45	7	63
1837	57	108	2	298	66	9	192	8	37	4	86
1838	74	150	1	302	62	11	195	3	50	5	45
1839	59	111	1	300	35	13	193	6	51	4	107
1840	86	157	0	286	38	8	145	[illegible]	54	7	86
	704	1095	10	2985	826	108	1864	104	471	51	470

	IV. ORGANS OF RESPIRATION.									V. ORGANS OF CIRCULATION.		
	42. Asthma.	43. Bronchitis.	44. Consumption.	45. Hydrothorax.	46. Laryngitis.	47. Pleurisy.	48. Pneumonia.	49. Quinsy.	50. Organs, &c., Diseases of.	51. Aneurism.	52. Pericarditis.	53. Organs, &c., Diseases of.
1831	6	63	673	48		24	192			4		
1832	11	97	681	62		19	225			3		
1833	8	37	650	52	3	8	166			5		
1834	10	121	636	52		11	169			4		
1835	12	171	717	57			240			4		
1836	10	141	755	47	3		205			2		
1837	5	146	748	53	5		226			2		
1838	13	118	725	57			230			4		
1839	9	148	708	67	4		228			7		
1840	9	112	777	44	4	14	211			3		
	593	1159	7070	39	19	76	2092			38		

	VI. OF THE DIGESTIVE ORGANS.															
	54. Ascites.	55. Colic.	56. Dyspepsia.	57. Enteritis.	58. Gastritis.	59. Hernia.	60. Intussusceptio.	61. Peritonitis.	62. Teething.	63. Ulceration.	64. Worms.	65. Organs, &c., Diseases of.	66. Pancreas, Disease of.	67. Hepatitis.	68. Jaundice.	69. Liver, Disease of.	70. Spleen, Disease of.
1831		4	4	81	34	14	5	23	8		8			42	13		
1832		13	7	125	41	7	1		14		12			21	6		
1833		8	1	135	48	4	2		9		7			18	13		
1834		5		111	41	6	2		10		6			37	10	1	
1835		6	1	96	30	4	3	17	12		9			23	12	10	2
1836		3	5	103	39	6	4	25	14		6			17	18		1
1837	27	3	3	111	34	5		24	10		9			26	13		1
1838	19	2	0	118	43	2		25	7		4			21	13		1
1839	22	8	2	175	35	2	2	18	19					30	9		
1840	26	7	2	110	41	2		24	5		6			25	12		
	94	59	25	1165	386	52	19	156	108		67			260	119	11	5

	VII. OF THE URINARY ORGANS.					VIII. ORGANS OF GENERATION.				IX. ORGANS OF LOCOMOTION.				X. OF THE INTEGUMENTARY SYSTEM.			
	71. Diabetes.	72. Cystitis.	73. Gravel.	74. Nephritis.	75. Organs, &c., Diseases of.	76. Childbirth.	77. Puerperal Fever.	78. Paramenia.	79 Organs, &c., Diseases of.	80. Rheumatism.	81. Joints, &c., Diseases of.	82. Hip, Disease of.	83. Spine, Disease of.	84. Fistula.	85. Ulcer.	86. Purpura.	87. Skin, Disease of.
1831	1	4		2		9	14			4					13		
1832	1	1	3	1		5	8			5		3		1	11		
1833	0	1		2		6	32			9		2			6		
1834	2	6	1	3		5	19			12		4			18	1	
1835	3	7	1	1		10	10			17		3		1	21	2	
1836	2	3		4		7	13			4			2		5	2	
1837	0	3		1		2	6			2		3	3		9	4	
1838	2	5				8	6			10		2	10		11	2	
1839		2		2		4	9			4		7	10		7	3	
1840		5		5		7	17			6		3	7	1	6	4	
	11	37	5	21		63	134			73		27	32	3	107	18	

XI. ON EXTERNAL CAUSES.

	88. Old Age.	89. Burns and Scalds.	90. Drowned.	91. Executed.	92. Frozen.	93. Glanders.	94. Heat.	95. Hydrophobia.	96. Intemperance.	97. Killed accidentally.*	98. Killed by design.	99. Lightning.	100. Malpractice.	101. Necusia.	102. Poisoned.	103. Strangulated.	104. Starved.
1831	74	25	51				2		27			1			2		
1832	58	21	55						5		2				3		2
1833	68	30	55				1	2	18		5				3		4
1834	61	27	60		2		16	1	28		2				1		2
1835	71	38	61		4				19		2						18
1836	72	24	49		8				26		3				14		5
1837	97	24	65	1	1				24						18		10
1838*	115	25	53	0	4		26	2	37						7		12
1839	97	26	39	1	6		2		34						2		19
1840	115	21	59		4		3		35		3	2			8		26
	828	261	547	2	29		50	5	243		17	3			58		98

NOT CLASSIFIED.

	Suicide.	Wounds.	Still-born.	Angina Pectoris.	Asphyxia.	Amenorrhœa.	Anemia.	Anthrax.	Casualties.
1831	10		316	1					20
1832	5	4	274	1	12				20
1833	18	6	312		5				21
1834	9	10	308	2	8	1			24
1835	16	9	308	3	14	1			21
1836	12		335	0	16	1	4		41
1837	9	1	321	6	15		2		85
1838	14		344	2	11	2	1	1	28
1839	8	3	348		21		1		27
1840	14		356	2	26			2	48
	115	33	3222	23	128	5	8	3	314

CAUSES OF DEATH NOT CLASSIFIED.

	Cachexia.	Caries.	Constipation.	Calculus.	Congestion.	Cyanosis.	Coup de soleil.	Cold water drinking.	Decay.	Fungus hæmatodes.	Ileus.	Hip disease.	Laudanum to excess.	Marasmus.	Mumps.	Neuralgia.	Rickets.	Spina bifida.	Unknown.
1831	4	4		2			1	2	7	1		2	3	0					60
1832	3	3	3		7		1	2	4	1		3	12	58	1	2			132
1833	8	3	3		31		1	1	6	1		2	16		1	0		1	85
1834	5	2	0		46		8	4		2		4	5				2		105
1835	3	4	3		32		1		5	3	1	3	6				1	2	114
1836	2	2	6		32			1	2	2	2	3		2			4	1	138
1837	2	7	2	2	40			1		4	0	3		96				1	197
1838	4	6		4	60					3	4	2				4	2		199
1839		1	1		60		1			3	1	7	6	136	3	1			176
1840	2	1	3		62	4				1	2	3		125	1	1	1	2	86
	33	33	19	8	370	4	13	11	24	21	10	32	48	417	6	8	10	7	1292

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* These are included under the head of Casualties.

Classes considered separately.—The 1*st Class*, containing the mortality from zimotic or epidemic, endemic and contagious diseases, shows for the whole decennial period a grand total of 13,652. This constitutes 1 death from diseases of this class to 3.63 from all other sources of mortality (49,678). Cholera Infantum takes precedence in this appalling list, the number having been 2,769. Next comes scarlatina, the sum total of which is 2,004. Next epidemic cholera, the amount under which head is 1,371, which includes the deaths from Asiatic cholera in 1832 and 1834. The same remark applies to the amount reported under the head of cholera infantum. Then comes diarrhœa, 1,227, followed by dysentery 1,020. The whole mortality from the four bowel affections—cholera, cholera infantum, diarrhœa and dysentery, is no less than 6,387, being nearly 50 per cent. of the deaths from all other diseases included in this class, and 1 in 7·7 of the total mortality from all other sources. It is proper to bear in mind that the great fatality from intestinal affections in this decennial period includes 1,225 deaths from Asiatic cholera, to say nothing of those from the same disease undoubtedly embraced under the head of cholera infantum and other bowel affections. Small-pox has a heavy sum of mortality charged to it, namely, 827 in the 10 years, a great increase on former rates, when compared with the whole amount for the previous 21 years, which is 1,225. The years of its greatest prevalence as an epidemic were 1833–'34 and '35. This shows the great importance of vigilance and necessity of enforcing protective measures, which should on no account be omitted from the exemption sometimes manifested during many years.

Measles occasioned 578 deaths. As the most frequent results of this malady are presented in other forms of disease to which it gives rise, the amount of mortality occasioned through measles indirectly cannot be ascertained with any kind of precision, but must, undoubtedly, be very great.

The deaths from *fevers* embraced in this class, have been included in a separate table F, in which those from scarlet and puerperal fevers have been omitted. The whole amount is 4,549, of which there are 425 merely denominated fever. Under the specific heads of bilious and remittent, there are 687; intermittent, 73; typhus and nervous, 996; making a total under these three heads of 1,756. The greatest mortality from febrile diseases occurred in the year 1832, when they were 853, and in 1836, when they amounted to 769. The columns of this and the table to which it is an appendix, show that the annual amounts fluctuate very greatly, the smallest having been 275 in 1839, when the number of deaths reported under the heads of bilious and remittent were only 47, intermittent 1, and typhus and nervous 47, making only 97 deaths from these diseases in this year, whilst in the year following the amount was only one more. The proportion of deaths from fevers to that from all other sources of mortality is 1 in 10·92.

TABLE F.

Mortality in Philadelphia from particular Fevers, in each year from 1831 *to* 1840.

	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	Totals.
Fevers, not designated	66	81	46	35	25	52	34	30	32	24	425
" Bilious and remittent	98	94	80	58	66	85	57	63	47	39	687
" Intermittent	15	15	7	3	3	13	5	3	1	8	73
" Typhus and Nervous	92	210	84	61	42	220	107	70	47	63	996
	271	400	217	157	136	380	203	166	127	134	2,181
Fevers of all other kinds except scarlet and puerperal	276	453	263	175	149	389	213	160	148	142	2,368
Totals	547	853	480	332	285	769	416	326	276	275	4,549

Scarlatina.—The total amount of deaths from this fatal source is, as before stated, 2,004, being nearly one-half of the sum total from all other fevers, puerperal excepted, and constituting rather more than 4 per cent. of the mortality from all other sources. How striking is the contrast with the reported mortality from this disease for a quarter of a century previous. In the year 1827, not a single death is recorded under this head, in 1828 only 1 death from scarlet fever is reported in the bill of mortality; during the whole period from 1807 to 1830, including 24 years, the bills of mortality only exhibit 150 deaths from scarlet fever. The greatest amount in any one year of our decennial period was in 1832, when it rose to 307, the smallest in 1833, when it was 61.

Hooping Cough claims 688 victims, the greatest number being in 1839, when the amount was 191, and the least in 1840, when only 4 deaths are returned under this head. The proportion of deaths from this disease to that from all other sources, is 1 in 72, being less than for the 20 years previous, when it was about 1 in 63 of the general mortality.

Croup.—Under this head we find no less than 1023 deaths recorded, the highest number in a single year being 127 in 1831, and the lowest 81 in 1834. In the 20 years from 1807 to 1827, the deaths reported from croup constituted 1 in 51 of the general mortality. During the last decennial period, it was 1 in 48, being a slight increase over former years.

CLASS II.—Showing the mortality from *diseases of no particular seat, as well as sporadic diseases.* This presents a grand total of 16,241 deaths, constituting about one in three of the general mortality from all sources.

Phlegmasia.—About half of the grand total just given, is from inflammations of various kinds, the whole amount of which is 8257. The fatal results of the different phlegmasiæ are exhibited in Table G.

TABLE G.

Phlegmasia or Inflammations.

	Of the Lungs (Pneumonia)	Breast (Pneumonia)	Pleurisy	Bronchitis	Croup	Catarrh	Larynx	Stomach	Bowels	Colon	Peritoneum	Brain	Heart	Liver	Kidney	Bladder	Womb	Throat	Totals
1831	192	28	24	63	127	58		34	81	4	23	89	5	42	2	4	4		780
1832	225	19	19	97	110	51		41	125			102	4	21	1	1	2	24	842
1833	166	17	8	37	95	26	3	48	135	8		72	2	18	2	1		3	641
1834	169	15	11	121	81			41	111	5		104	6	37	3	6	2	19	731
1835	240	37		171	128			30	96	6	17	106	9	23	1	7	3	12	886
1836	205	44		141	118		3	39	103	3	25	96	8	17	4	3	5	3	817
1837	226	42		146	104		5	34	111	1	24	108	2	26	1	3	6	20	859
1838	230	41		118	101			43	118	2	25	150	3	21		5	4	22	883
1839	228	27		148	83		4	35	175	8	18	111	5	30	2	2	1	11	888
1840	211	28	14	112	79		4	41	110	7	24	157	12	25	5	5	1	11	846
Totals	2092	298	76	1154	1026	135	19	386	1165	44	156	1095	56	260	21	37			
														Other Phlegmasia					64
														Total					8237

The deaths from inflammatory affections of the lungs and air passages, amount to 4800, being nearly one-half of the deaths, from all kinds of inflammation. Of these, 2390 may be placed under the head of pneumonia; 76 of pleurisy; 1154 of bronchitis; 1026 of croup; 19 of the larynx, and 135 of catarrh. The great mortality from inflammatory affections of the lungs and air-passages, shows the importance attached to their prevention and treatment.

Inflammation of the stomach, bowels and peritoneum carried off 1751, of which no less than 1165 are under the head of inflammation of the bowels. The proportion of deaths from these abdominal affections is about one in nine of the deaths from all the phlegmasia.

In addition to the deaths from inflammations designated in Table G, there were 64 registered during the 10 years, under the following heads, viz: inflammation, 28; inflammation of the trachea, 10; spinal marrow, 5; vein, 5; arachnitis, 4; parotid gland, 3; spleen, 2; knee-joint, 2; scrotum, 2; testicle, 1; pharynx, 1; aorta, 1.

TABLE H.

Mortality in Philadelphia from Dropsical Affections from 1831 *to* 1840.

	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	Total.
Dropsy	111	115	80	103	89	108	72	61	75	77	891
" of the breast	48	62	52	52	57	47	53	57	67	44	539
" of the head	208	187	170	198	214	162	192	195	193	145	1864
" of the spine		2					2				4
" abdominal							27	19	22	26	94
" ovarian							1			1	2
	367	366	302	353	360	317	347	332	357	293	3394

Dropsies.—The deaths from these are next in amount after those from inflammations, being for the whole ten years 3394, constituting about 1 in 11 of the deaths from all other diseases. No less than 1864, or above one-half, are recorded as dropsy of the head, and 539 as dropsy of the chest, which two designations embrace about 70 per cent. of the whole mortality from all kinds of dropsy. The deaths are distributed through the different years with remarkable regularity, the highest number being 367 in 1831, and the lowest 293 in 1840.

Debility and Atrophy.—Under these two vague heads, used so frequently from ignorance of the specific disease causing death, are included no less than 2978 deaths, of which 1912 are set down to debility, and 1066 to atrophy.

Abscess.—This head embraces 210 deaths under 14 different heads, of which that of *abscess* without any further designation contains 140; abscess in the lungs, 26; of the liver and lungs, 13; of the liver alone, 10; in the brain, 7; lumbar, 3; hip and leg, 2; neck, 2; ear, 2; kidneys, 1; throat, 1; knee-joint, 1; side, 1; abdomen, 1.

Cancer.—There are 326 deaths from cancer, and 66 from scirrhus, making in all 388 deaths from these sources in the 10 years. Of the deaths under the head of cancer, the seats of 192 are undesignated, 55 are of the uterus, 26 of the breast, 22 of the stomach, 7 of the mouth, 4 of the liver, 3 of the rectum, 3 of the face, 2 of the ovaries, 2 of the neck, 2 of the penis, 1 of the intestines, 1 of the leg, 1 of the throat, 1 of the lungs, 1 of the tongue.

Of the deaths recorded under the name of *scirrhus*, there were 16 the seats of which were undesignated, 16 of the stomach, 12 of the liver, 7 of the uterus, 4 of the pylorus, 2 of the bowels, 2 of the rectum, 1 of the prostate gland, 1 of the breast, and 1 of the ovaries. The deaths reported from cancer and scirrhus are spread through the different years with considerable uniformity, showing a steady increase with that of the general population. Beginning with those reported in 1831, the annual sums run thus, up to 1840: 20, 32, 39, 42, 41, 36, 39, 51, 38, 46.

The deaths from hemorrhage have no designation of the different kinds until the year 1837, in which, and the three following years, 126 deaths are reported, distributed under the following heads: From the lungs, 9; stomach, 10; bowels, 9; uterus, 8; bladder, 1; gums, 1; undesignated, 46.

Infantile Diseases, which, according to the mode of classification adopted, are embraced in this division, will be the subject of future consideration.

Class III. *Diseases of the Nervous System.*—The sum total of deaths from this class of affections is formidable, being 8688.

Convulsions claim, as usual, the largest proportion of victims recorded under a separate head, the whole amount during the decennial period being 2985. The numbers reported for the various years have considerable regularity, the highest being 351 in 1835, and the lowest 266 in 1833.

The deaths from convulsions constitute more than one-third of those from all diseases of the nervous system. Being generally the result of some particular affection of the brain, the term convulsion commonly designates but a symptom, and not the specific disease or true cause of death.

Hydrocephalus is charged with 1864 deaths, cephalitis 1095, delirium tremens 826, apoplexy 704, palsy 471, epilepsy 108, insanity 104, tetanus 51, and chorea 10.

The column numbered 41, embraces the deaths reported in the bills of mortality from diseases of the brain not specified in the table. The whole amount is 470, distributed as follows: Disease of the brain, 231; concussion of the brain, 12; compression of the brain, 9; congestion of the brain, 123; effusion on the brain, 38; irritation of the brain, 7; abscess in the brain, 7; softening of the brain, 34; suppuration of the brain, 1; injury of the brain, 7; tumour on the brain, 1.

The columns representing the deaths annually from *delirium tremens* and *insanity*, both exhibit a very considerable decline in the last years of the series. This is mainly owing to the fact that the public institutions, to which most of such cases are committed, have been removed beyond the limits of the Board of Health. Part of the diminution is, however, doubtless owing to the progress which temperance societies have made in checking and reforming bad habits, aided by the happy influences exerted upon communities by the spread of intelligence.

Class IV, *containing the Deaths from Diseases seated in the Organs of Respiration.*—Many of these have already been presented under different heads, in the tables exhibiting the deaths from the phlegmasia, and dropsies appertaining to Class II. Taking the whole amount of mortality reported in the bills under the heads of inflammation of the lungs and pneumonia, 2092,—inflammation of the breast and chest, 298,—pleurisy, 76,—bronchitis, 1154,—croup, 1026,—catarrh, 135,—inflammation of the larynx, 19,—asthma, 93,—consumption, 7070,—we have a grand total of 11,963 deaths during the decennial period, from diseases located in the lungs and air-passages.

The mortality from these sources, when compared with that from all others, is about 1 to 4. The amount from consumption alone comprises by far the greatest portion, being 7070 for the 10 years, or 1 in 7 of the deaths from all other diseases, and about 1 death per annum to 282 of the general population. The ratio of mortality from this direful scourge, though much lower than in some others of our large cities, is increased by the greater prevalence of phthisis among the large coloured population. Could the deaths from consumption of the whites be separately estimated, the ratio of mortality would be much less, and especially so could there be a deduction of the interments of the many strangers who resort to Philadelphia for amelioration of this disease in its advanced stages.

The annual sums of mortality from consumption, present a very regular increase, the highest number being 777 in 1840, and the lowest 636 in 1834. The lowest ratio of mortality to the general population was in 1839, when it was 1 to 325 inhabitants, and the highest in 1831, when it was 1 in 259.

Class V. *Deaths from Diseases of the Organs of Circulation.*—The manner in which the bills of mortality have been made out, does not admit of the filling up of but one of the three columns devoted to this class. The deaths from inflammation of the heart will be found in the table devoted to the phlegmasia, whilst those from diseases of some other organs of the circulation, are scattered through other tabular statements.

The deaths recorded from diseases of the heart amount to 339, distributed as follows: diseases of the heart, 240—hypertrophy of the heart, 90—ossified valves, 4—dilatation, 5.

Class VI. *Diseases seated in the Digestive Organs.*—By far the largest amount of deaths from diseases in these organs, is embraced in Class I., under the heads of cholera, diarrhœa, dysentery, &c. The total mortality charged to Class VI., is 2516, and more than one half of this amount is from phlegmasia already mentioned, such as enteritis, gastritis, etc.

Class VII. *Diseases situated in the Urinary Organs*, only furnish 74 deaths in the whole decennial period. Of these, 11 are from diabetes, 37 cystitis, 5 gravel, and 21 nephritis. To the deaths from gravel we may add 8 from a column of the unclassified diseases headed calculus, making the whole number of deaths from gravel and stone 13.

Class VIII. *Diseases of the Organs of Generation* exhibit a mortality of 197, all of which are from affections peculiar to females, and attendant upon parturition. Puerperal fever is charged with 144 deaths, and 63 are indefinitely ascribed to "childbirth."

Class IX. *Diseases of the Organs of Locomotion.*—Of these, numbering in all 132, rheumatism is charged with 73, hip joint disease with 27, and spinal disease with 32.

Class X.—*Diseases of the Integumentary System* embrace 128 deaths under three heads, of which 107 are from ulcers, 18 purpura, and 3 fistula.

Class XI.—The column headed Deaths from *Old Age*, contains 828. Of these, there are placed between the 50th and 60th year, 21; between 60th and 70th, 66; between 70th and 80th, 246; between 80th and 90th, 369; between 90th and 100th, 130; between 100th and 110th, 29, and over 110, 1. In 1832, the bills commence distinguishing the males and females under this head, and it appears that, out of 788 deaths reported, 530 were females, and only 258 males.

Under the indefinite head of "Congestion," we have 370 deaths recorded, with the following designations:—Of the liver, 4; lungs, 123; brain, 238; not specified, 5.

The deaths ascribable to "*External Causes*," are distributed under a great many heads. There are no less than 547 under that appropriated to the "Drowned," and 261 in that of "Burns and Scalds." "Excessive Heat" is charged with 50 deaths, 16 of which were in 1834, and 26 in 1838; 29 are registered "Frozen," of which 8 were in 1836, 6 in 1839, 4 in 1835, and 4 in 1840. Intemperance numbers 243 deaths, suicide 115, wounds 33, poisoned 58, killed by design 17, by lightning 3, executed 2, hydrophobia 5, starved 98.

The still-born, in the ten years, amount to 3222, being rather under 6½ per cent. of the whole mortality, and about 1 to 24 live births.

For nine years of the decennial period, from 1832 to 1840 inclusive, the sexes of the still-born are designated. Of 2906 reported cases, 1665 were males, and 1241 females. The sexes were not given separately in 1831. This head undoubtedly embraces the dead-born at all periods of gestation. It would be interesting to have the sexes of the still-born, strictly so called, distinguished from those of the dead-born at the natural period of gestation, as this would show the amount of the greater risks run in parturition by the males.

TABLE J.

Deaths in Philadelphia for each Month of ten years, from 1831 *to* 1840, *with a designation of those which occurred over and under the* 20*th year.*

Year.	January.			February.			March.			April.			May.			June.		
	Adults.	Under 20.	Totals.	Adults.	Under 20.	Totals.	Adults.	Under 20.	Totals.	Adults.	Under 20.	Totals.	Adults.	Under 20.	Totals.	Adults.	Under 20.	Totals.
1831	159	147	306	166	170	336	156	173	329	197	162	359	148	164	312	114	198	312
1832	253	361	614	151	324	475	218	298	516	215	257	472	274	299	573	179	211	390
1833	203	192	395	152	168	320	180	186	366	175	148	323	178	179	357	141	209	350
1834	200	212	412	160	194	354	181	234	415	160	152	312	154	167	321	121	210	331
1835	186	288	474	170	260	430	216	246	462	197	373	570	158	305	463	155	312	467
1836	182	275	457	165	222	387	177	196	373	254	225	479	231	149	380	204	182	386
1837	216	274	490	175	221	396	192	235	427	257	286	543	156	186	342	145	181	326
1838	247	222	469	169	239	408	174	242	416	174	322	496	144	228	372	134	210	344
1839	189	279	468	164	237	401	203	282	485	147	209	356	138	184	322	131	296	427
1840	241	297	538	174	206	380	156	241	397	222	273	495	142	193	335	163	204	367
Totals	2076	2547	4623	1646	2241	3887	1853	2333	4186	1998	2407	4405	1723	2054	3777	1457	2213	3700

Year.	July.			August.			September.			October.			November.			December		
	Adults.	Under 20.	Totals.	Adults.	Under 20.	Totals.	Adults.	Under 20.	Totals.	Adults.	Under 20.	Totals.	Adults.	Under 20.	Totals.	Adults.	Under 20.	Totals.
1831	178	407	585	156	286	442	206	275	481	175	203	378	184	207	391	380	328	708
1832	200	365	565	1099	590	1689	215	234	449	194	192	386	130	127	257	136	177	313
1833	224	362	586	162	240	402	167	180	347	199	161	360	166	149	315	152	167	319
1834	261	506	767	163	311	474	219	214	433	347	242	589	146	165	311	177	177	354
1835	197	478	675	162	365	527	189	335	524	143	203	346	130	207	337	149	242	391
1836	260	310	570	216	309	505	229	301	530	189	194	382	209	187	397	235	265	500
1837	222	417	639	173	376	549	194	295	489	153	187	340	142	168	310	167	181	348
1838	273	597	870	175	425	600	208	321	529	162	175	337	143	153	296	150	161	311
1839	196	379	575	154	363	517	147	237	384	206	215	421	144	178	322	133	189	322
1840	253	385	638	158	281	439	184	203	387	192	214	406	146	128	274	150	153	303
Totals.	2264	4206	6470	2618	3546	6164	1958	2595	4553	1960	1986	3946	1540	1669	3209	1829	2040	3869

Monthly Mortality.—In Table J, the deaths during ten years are distributed among the different months in which they occurred, showing the influence of the seasons upon the mortality of both adults and children. It may be interesting to compare the results with those presented in the second series of statistical calculations, published in the *American Journal of the Medical Sciences* for November, 1831. Among the most conspicuous developments is that of the diminution of the sums of the general mortality for those months in which a moderate temperature prevails, such as May and October, compared with the augmentation of the sums for the cold, but more especially for the warmest months, chiefly from the unfavourable effects of extreme heat upon infants.

The months, when arranged according to the decreasing mortality of the general population of all ages, take the following order, the short months having been equalized: 1st, July, 6470; 2d, August, 6164; 3d, September, 4704; 4th, January, 4623; 5th, April, 4551; 6th, February, 4301; 7th, March, 4186; 8th, October, 3946; 9th, December, 3869; 10th, June, 3823; 11th, May, 3777; 12th, November, 3306.

During the four last years of the decennial period, the bills of mortality exhibit the monthly deaths of the coloured inhabitants separately. The following statement will show the influence of the seasons upon this division of the population, numbering about 18,000.

	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total.
1837	46	41	45	69	41	43	73	41	47	40	30	52	568
1838	60	46	53	69	51	36	93	65	62	34	33	47	649
1839	49	54	63	48	37	47	65	52	40	55	34	40	584
1840	55	41	38	70	30	43	80	31	27	37	26	29	507
Monthly totals,	210	182	199	256	159	169	311	189	176	166	123	168	2308

The months, when arranged so as to show the decreasing mortality of the coloured population alone, take the following order, which will be found considerably different from that exhibited by the general mortality: 1st, July, 311; 2d, April, 256; 3d, January, 210; 4th, February, 200; 5th, March, 199; 6th, August, 189; 7th, Sept., 176; 8th, June, 169; 9th, Dec., 168; 10th, October, 166; 11th, May, 159; 12th, November, 123.

TABLE K.

Monthly Mortality in Philadelphia in four consecutive years, from 1837 *to* 1840, *at various ages up to the* 20*th year.*

Month.	Under 1 y'r. (still born excluded.)	Between 1st and 2d year.	Between 2d and 5th year.	Between 5th and 10th year.	Between 10th and 20th year.	Totals.	Months equalized.
January	422	184	202	90	55	953	953
February	342	158	165	66	58	789	868
March	400	152	194	76	64	886	886
April	429	177	210	97	63	976	992
May	268	118	166	65	60	677	677
June	413	123	133	47	61	777	806
July	1030	360	184	92	88	1754	1754
August	657	397	160	87	60	1361	1361
September	451	268	178	67	56	1020	1054
October	299	123	132	61	58	673	673
November	222	95	114	38	44	513	527
December	238	98	132	53	49	570	570
	5,171	2,253	1,970	839	716	10,979	

The effects of the fatal influences exerted in particular months upon the different ages under the 20th year, are shown in Table K, where the monthly deaths at the various periods of life designated in the bills of mortality, are given for four consecutive years. In the column next to the last, are the actual totals for the several months, which, having different lengths, do not, of course, present the proportional mortality for an equal space of time. We have therefore equalized the months in the last column, so as to give to the short the proportions of the long months.

It will be seen that the mortality in the first year of life was 5,171, which is about 47 per cent. of the whole mortality under the 20th year, (10,979,) and about 27 per cent. of the mortality at all ages. The deaths under the 5th year amount to 9,394, constituting about 86 per cent. of the whole mortality under the 20th year, and leaving but 16 per cent. for the succeeding 15 years of life. Compared with the total mortality at all ages, that under the 5th year comprises 49 per cent., and that under the 20th year, 56 per cent.

When we compare the several months for the purpose of ascertaining their proportional infantile mortality, we find them in the equalized column taking the following order, commencing with the highest totals: July, 1754; August, 1361; September, 1054; April, 992; January, 953; March, 886; February, 868; June, 806; May, 677; October, 673; December, 570; November, 527. After the 2d year of life, the columns exhibiting the deaths during the subsequent 18 years, present comparatively slight fluctuations with the changing seasons. Casting the eye down the 1st and 2d columns, the swelling of the numbers representing the mortality in June, July, August and September, is very conspicuous, whilst in the columns containing the deaths after the 2d year of life, little, if any, increase is perceptible during the warm months. On the contrary, after the 2d year, the warm months seem more favourable to life than the cold months. This fact—the destructive influence exerted by the hot season upon infantile life, and its limitation almost to the first year of existence,—is a subject which we have formerly treated of in the paper referred to, published in the *American Journal of the Medical Sciences* for November, 1831.

Art. II.—*Statistics of Amputations in the New York Hospital, from* January 1st, 1839, to January 1st, 1848. By Henry W. Buel, M.D., Resident Surgeon.

The importance of accurate knowledge with regard to such an operation as that of amputation, will hardly be questioned. By the ancients, unacquainted as they were with the circulation of the blood, or the proper means of arresting its flow, this operation was dreaded and avoided. To such an extent were they impressed with its danger, that we even find it recommended that "a limb should be allowed to drop off rather than to cut it off." As the operation advanced more nearly to perfection, we find Mr. Benjamin Bell saying, "In the present improved state of the operation, I do not imagine that one death will happen in twenty cases, even including the general run of hospital practice."

Opinions similar to this last have been held until quite recently, and are probably even yet entertained by some, if not many, surgeons.

Within a few years, however, the subject has attracted more careful examination. Mr. Benjamin Phillips of London, and M. Malgaigne of Paris, have published statistical accounts of amputations performed in the respective countries where they reside. The former gentleman has also extended his observations into other countries.

In our own country, Dr. Norris of Philadelphia, and Dr. Hayward of Boston, have published accounts of hospital amputations.

The following tables include all the amputations, so far as they can at present be collected, that have been performed at the New York Hospital during the nine years included between Jan. 1st, 1839, and Jan. 1st, 1848. Unfortunately there is a portion of time embracing the cases occurring in one of the two surgical divisions of the hospital, during parts of the years 1842 and 1843, of which, owing to the loss of one of the twelve volumes of the hospital case books, a full account cannot at present be obtained.

AMPUTATION AT

No.	Name.	Age.	Disease or injury.
1	William Cahill	22	Thigh severed by railroad car

AMPUTATIONS OF

No.	Name.	Age.	Disease or injury.
1	Michael Powell	28	Fracture, 2d time
2	James Duffy	40	Compound fracture of both thighs, R.R.
3	Hugh Murphy	27	Comminuted fracture, R.R.
4	John Langen	19	Disease of knee-joint, 2 years
5	Sarah Ann Smith	40	Encephaloid tumour
6	Peter Titus	29	Disease of knee-joint, 8 months
7	Mary Ann Murray	7	Comminuted fracture
8	Joseph Peabody	20	Fungus hematodes of knee
9	Joseph Barr	15	Fracture followed by mortification
10	James Foley	45	Fracture at neck of femur, gangrene
11	John M'Kane	46	Comminuted fracture, at ferry
12	Morris O'Rourke	25	Compound fracture into knee-joint, R.R.
13	Thomas Lee	15	Compound fracture of leg, at sea
14	James Robertson	31	Disease of knee-joint, 3 years
15	John Colbert	54	Compound fracture, R.R.
16	Thomas Fallow	16	Disease of knee-joint, 7 months
17	John W. Leonard	52	Compound fracture, sec. hemorrhage
18	Ebenezer Armstrong	45	Compound fracture
19	William Hollaham	22	Disease of knee-joint, 7 years
20	Thomas Halfpenny	30	Disease of knee-joint, 3 years
21	John Hackett	38	Abscess of thigh
22	Henry Wilson	27	Gunshot wound of thigh
23	John Buiner	36	Disease of knee-joint, 3 years
24	Thomas M'Ivoy	27	Comminuted fracture
25	John Halligan	26	Disease of knee-joint, 3 months
26	Samuel Sheller	22	Disease of knee-joint, 2 months
27	Sarah Kells	24	Disease of knee-joint, 2 years
28	Samuel H. Drummond	34	Disease of knee-joint, 2 months
29	Thomas Brannard	14	Diffused abscess of thigh and leg
30	Thomas M'Nestry	25	Comminuted fracture
31	John C. Voorhis	39	Compound fracture, followed by gangrene
32	William H. Price	27	Disease of knee-joint, 5 months
33	Hugh Chittuck	24	Disease of knee-joint, 12 months
34	William Fisher	66	Compound fracture of thigh

AMPUTATION AT

No.	Name.	Age.	Disease or injury.
1	Ellen Callighan	35	Burn of foot, leg and thigh

THE HIP-JOINT.

Date of admission.	Date of operation.	Result.	Date of discharge or death.
January 9, 1847	January 10, 1847	Died	January 10, 1847.

THE THIGH.

Date of admission.	Date of operation.	Result.	Date of discharge or death.
March 31, 1838	March 14, 1839	Died	March 24, 1839.
July 4, 1839	July 4, 1839	Died	July 7, 1839.
July 16, 1839	July 16, 1839	Cured	October 7, 1839.
August 19, 1839	August 22, 1839	Cured	November 26, 1639.
September 3, 1839	September 12, 1839	Cured	November 23, 1839.
May 30, 1840	June 26, 1840	Died	July 26, 1840.
July 26, 1841	July 26, 1841	Cured	November 27, 1841.
October 6, 1841	October 7, 1841	Died	December 3, 1841.
September 23, 1841	October 18, 1841	Cured	January 4, 1842.
October 11, 1841	October 29, 1841	Cured	January 31, 1842.
December 20, 1841	December 20, 1841	Died	December 24, 1841.
February 20, 1842	February 20, 1842	Died	February 25, 1842.
February 9, 1842	March 2, 1842	Cured	June 25, 1842.
September 8, 1842	January 20, 1843	Cured	February 28, 1843.
November 25, 1843	November 25, 1843	Died	November 25, 1843.
June 13, 1843	January 6, 1844	Cured	March 11, 1844.
November 28, 1843	January 27, 1844	Cured	June 18, 1844.
June 19, 1844	June 19, 1844	Cured	October 16, 1844.
August 23, 1844	September 10, 1844	Cured	November 8, 1844.
November 13, 1844	November 28, 1844	Cured	January 18, 1845.
January 18, 1845	February 11, 1845	Cured	May 20, 1845.
October 21, 1844	February 20, 1845	Died	March 6, 1845.
December 7, 1844	March 11, 1845	Cured	May 1, 1845.
July 11, 1845	July 15, 1845	Cured	August 25, 1845.
July , 1845	October 11, 1845	Cured	December 9, 1845.
August 16, 1845	January 10, 1846	Cured	February 20, 1846.
January 6, 1846	January 12, 1846	Cured	May 12, 1846.
August 16, 1845	February 7, 1846	Cured	March 26, 1846.
April 7, 1846	April 19, 1846	Died	May 6, 1846.
November 28, 1845	April 20, 1846	Cured	October 12, 1846.
July 4, 1846	July 9, 1846	Cured	November 20, 1846.
January 19, 1847	February 13, 1847	Died	February 18, 1847.
March 20, 1847	June 7, 1847	Cured	August 3, 1847.
August 30, 1847	September 30, 1847	Cured	April 10, 1848.

THE KNEE-JOINT.

Date of admission.	Date of operation.	Result.	Date of discharge or death.
January 27, 1846	February 9, 1846	Died	March 7, 1846.

AMPUTATIONS OF

No.	Name.	Age.	Disease or injury.
1	Lydia Cunningham	10	Compound fracture of leg, R.R.
2	Peter Connell	28	Irritable stump, after amputation at sea
3	Christopher Mumford	54	Compound fracture from bursting of a cannon
4	Patrick Farley	23	Comminuted fracture, mortification
5	Charles J. Titcomb	23	Caries of tibia of long duration
6	Thomas Lawless	45	Compound fracture of leg
7	Michael Parker	30	Scrofulous disease of ankle, 15 months
8	Mary Gray	45	Compound fracture of leg
9	Edwin Marshall	35	Compound fracture of leg
10	Henry C. Frink	35	Malignant tumour of leg
11	Richard Shepherd	51	Compound and comminuted fracture of foot
12	Owen Quin	50	Compound and comminuted fracture of leg
13	Patrick Shay	37	Compound and comminuted fracture of leg, R.R.
14	Matthew Henessey	22	Compound fract. of leg and fract. of vertebræ
15	Martin Durkin	30	Comminuted fracture of tarsus, fibula, &c., R.R.
16	John Galligan	11	Compound dislocation of ankle, &c.
17	Thomas Stewart	26	Compound fracture of tib., fr. humeri and comp. fr. rad. and uln.
18	William Henry Short	30	Disease of ankle-joint, after erysipelas
19	Patrick Tenman	28	Compound fracture and dislocation of ankle
20	John Egan	25	Comp. fr. of tib. and fib., simp. fr. of femur, R.R.
21	Patrick Everard	45	Compound fracture of tarsus, fib., &c., R.R.
22	Albert Stone	12	Laceration followed by sloughing, R.R.
23	Charles Hemmaling	25	Chronic disease of ankle-joint, 3 months
24	Morris Marra	50	Compound fracture of tib. and fibula

AMPUTATIONS AT

No.	Name.	Age.	Disease or injury.
1	David Jarvis	19	Laceration of arm by gunshot
2	John Maloney	37	Burn from sleeve taking fire
3	George Hamilton	23	Burn, 5 months
4	Hannah Murphy	30	Burn
5	Robert Cannon	21	Arm torn off in falling from a height
6	Ellen Shannon	4	Burn, arm sphacelous
7	Heinrich Bordmann	32	Arm torn to shreds in machinery
8	Margery M'Vernon	70	Burn
9	James M'Vickar	34	Comminuted fracture of os brach., gangrene

AMPUTATIONS OF

No.	Name.	Age.	Disease or injury.
1	Richard Fisher	22	Scrofulous disease of elbow-joint, 3 months
2	Michael Aymer	23	Compound fracture of forearm
3	Gottfried Sporling	35	Wound of arm, mal-treated
4	John Lamphine	40	Inflammation of hand and forearm, gangrene
5	Alexander Dalrymple	9	Compound and comminuted fracture
6	James Hagan	9	Scrofulous disease of elbow-joint
7	John Belford	17	Arm torn by machinery
8	Charles Peterson	13	Arm torn off by machinery
9	George Fisher	32	Compound fracture of rad. uln. and os brach.
10	John Gannen	31	Compound fracture of os brach.
11	Hugh Sheridan	55	Forearm torn off by machinery

THE LEG.

Date of admission.	Date of operation.	Result.	Date of discharge or death.
August 3, 1839	August 3, 1839	Cured	November 4, 1839.
May 4, 1840	May 4, 1840	Cured	July 30, 1840.
July 4, 1840	July 4, 1840	Died	July 9, 1840.
May 13, 1841	May 13, 1841	Died	May 14, 1841.
August 5, 1841	August 10, 1841	Died	September , 1841.
September 3, 1841	September 3, 1841	Cured	December 13, 1841.
September 15, 1841	November 4, 1841	Cured	March 1, 1842.
December 27, 1841	January 9, 1842	Cured	May 10, 1842.
May 28, 1844	May 28, 1844	Died	June 5, 1844.
July 30, 1844	July 31, 1844	Cured	September 21, 1844.
June 25, 1845	June 25, 1845	Cured	August 1, 1845.
May 2, 1846	June 4, 1846	Cured	August 3, 1846.
May 21, 1846	May 21, 1846	Cured	August 7, 1846.
September 11, 1846	September 11, 1846	Died	October 5, 1846.
January 5, 1847	January 5, 1847	Cured	March 9, 1847.
March 28, 1847	March 28, 1847	Cured	May 22, 1847.
June 18, 1847	June 18, 1847	Died	June 26, 1847.
May 11, 1847	June 27, 1847	Cured	October 11, 1847.
July 14, 1847	July 21, 1847	Cured	September 25, 1847.
August 4, 1847	August 4, 1847	Cured	October 18, 1847.
October 7, 1847	October 8, 1847	Died	October 8, 1847.
September 30, 1847	October 25, 1847	Cured	February 3, 1848.
May 23, 1847	October 25, 1847	Cured	March 6, 1848.
September 4, 1847	November 19, 1847	Cured	January 29, 1848.

THE SHOULDER-JOINT.

Date of admission.	Date of operation.	Result.	Date of discharge or death.
October 5, 1839	October 5, 1839	Cured	January 4, 1840.
November 21, 1840	November 21, 1840	Cured	February 2, 1841.
July 21, 1841	October 30, 1841	Cured	December 11, 1841.
December 25, 1841	January 17, 1842	Cured	June 10, 1842.
August 14, 1844	August 14, 1844	Cured	December 30, 1844.
January 30, 1845	January 31, 1845	Died	February 28, 1845.
April 7, 1846	April 7, 1846	Died*	April 16, 1846.
December 11, 1846	December 15, 1846	Died	December 17, 1846.
April 12, 1847	April 17, 1847	Died*	April 24, 1847.

THE ARM.

Date of admission.	Date of operation.	Result.	Date of discharge or death.
May 20, 1839	July 30, 1839	Cured	October 22, 1839.
October 8, 1841	October 8, 1841	Cured	November 29, 1841.
November 16, 1843	November 16, 1843	Cured	April 8, 1844.
January 2, 1844	May 10, 1844	Cured	June 28, 1844.
May 19, 1845	May 19, 1845	Cured	June 22, 1845.
July 21, 1845	July 30, 1845	Cured	September 4, 1845.
September 25, 1845	September 25, 1845	Cured	October 29, 1845.
June 24, 1846	June 24, 1846	Cured	July 21, 1846.
September 29, 1847	September 29, 1847	Cured	October 23, 1847.
October 12, 1847	October 12, 1847	Cured	December 30, 1847.
December 8, 1847	December 9, 1847	Cured	January 17, 1848.

* Died of tetanus.

AMPUTATIONS OF

No.	Name.	Age.	Disease or injury.
1	Joseph Lyle	26	Injury of wrist, 2 years
2	Patrick Madden	22	Injury of hand from explosion
3	Henry Dowling	28	Laceration of hand
4	Edward Mullen	36	Scrofulous disease of wrist, 4 years
5	William Harrison	21	Gunshot wound of hand
6	Thomas Harney	50	Compound fracture
7	E. Latham	63	Carcinoma of hand
8	John Mehill	28	Compound and commin. fract. from machinery
9	John J. Smith	49	Scrofulous disease of hand, 4 months
10	Charles Bradley	46	Laceration of hand
11	James Karsley	52	Phlegmonous erysipelas and sloughing

It will be seen that the whole number of amputations here presented amounts to ninety-one; of which, twenty-six were fatal; making the mortality 28·57 per cent.

Of amputations at the hip-joint there was one, and that fatal.

Of amputations of the thigh, the whole number was thirty-four, of which ten were fatal; making the mortality 26·47 per cent.

At the knee-joint there was one amputation, and that fatal.

Of amputations of the leg, the whole number was twenty-four, of which seven were fatal; making the mortality 29·16 per cent.

Of amputations at the shoulder-joint, the whole number was nine; of which four were fatal; making the mortality 44·44 per cent.

Of amputations of the arm, the whole number was eleven, of which none were fatal.

Of amputations of the forearm, the whole number was thirteen; of which three were fatal; making the mortality 23·07 per cent.

So that we have sixty amputations of the lower extremity; of which nineteen were fatal; making the mortality 31·66 per cent.

While of thirty-three amputations of the upper extremity, seven were fatal; making the mortality 21·21 per cent.

With regard to the methods employed in these various operations, the reports of the cases do not, in every instance, specify the method; but in forty-nine cases, (the whole number in which it is specified,) twenty-four were performed by double-flap operation, and twenty-five by circular operation. Of the first number, four were fatal; making the mortality 17·66 per cent. Of the last, three; making the mortality 12 per cent.

Of the double-flap operations, there were fifteen of the thigh, of which two were fatal; three of the leg, of which one was fatal; four of the arm and one of the forearm, of which none were fatal.

Of the twenty-five circular operations, six were of the thigh, of which none were fatal; fifteen were of the leg, of which three were fatal; three were of the arm, and one of the forearm, of which none were fatal.

THE FOREARM.

Date of admission.	Date of operation.	Result.	Date of discharge or death.
January 29, 1839	February 13, 1839	Died	June 22, 1839.
July 4, 1839	July 4, 1839	Cured	July 29, 1839.
July 15, 1839	July 15, 1839	Cured	August 31, 1839.
October 20, 1841	October 23, 1841	Died	December 20, 1841.
April 10, 1844	April 10, 1844	Cured	May 10, 1844.
June 3, 1844	June 3, 1844	Cured	September 5, 1844.
January 10, 1845	January 17, 1845	Cured	February 26, 1845.
May 26, 1845	May 26, 1845	Cured	June 17, 1845.
April 15, 1845	June 17, 1845	Died	July 14, 1845.
September 26, 1845	November 15, 1845	Cured	January 1, 1846.
January 18, 1847	February 27, 1847	Cured	April 26, 1847.

Secondary hemorrhage occurred in only one of these forty-nine cases, and in that, it occurred twice.

There were, in the whole number, two other cases, making, in all, three cases of secondary hemorrhage. The greater mortality of the flap operation may, perhaps, be attributed to the greater proportion of thigh amputations performed in that manner.

As to the question, whether primary or secondary amputation is preferable, it is evident, that an equal number of similar cases should be selected from each class, in order to institute anything like a just comparison. It is customary at the New York Hospital, when amputation is demanded after severe injuries, to operate before the accession of inflammatory action. So that, strictly speaking, the occasions for secondary amputations will be comparatively rare.

Of the whole number of amputations, sixty-two were the result of injuries, and were fatal in nineteen cases; making the mortality 30·64 per cent.

Of these, thirty-six were primary amputations; of which there were of the hip-joint one, and that fatal; of the thigh, seven, of which four were fatal; of the leg, twelve, of which five were fatal; of the arm, seven, and of the forearm, five, of which none were fatal. Making the mortality 27·77.

The remaining twenty-six amputations may all be said to have resulted from injuries of a more or less severe character; but, as will be seen, they were performed at very different periods after the original injury.

Of this number, eleven were amputations of the thigh, of which three were fatal. At the knee-joint, one, which was fatal; of the leg, seven, of which one was fatal. At the shoulder-joint, five, of which three were fatal; of the arm, one, and of the forearm, one, of which neither was fatal; making the mortality 30·76 per cent.

The number of operations for various chronic affections was twenty-nine, of which six were fatal. Of the thigh there were eighteen, of which four were fatal. Of the leg, five, of which none were fatal; of the arm, three, of which none were fatal; of the forearm, four, of which two were fatal. Making the mortality 20·67 per cent.

The ages of the patients operated upon were as follows:—

Under	10 years of age,	4,	of whom	1	died.
Between	10 and 20,	11,	"	1	"
"	20 and 30,	32,	"	12	"
"	30 and 40,	21,	"	5	"
"	40 and 50,	11,	"	4	"
"	50 and 60,	9,	"	2	"
"	60 and 70,	2,	"	0	"
"	70 and 80,	1,	"	1	"
		91		26	

The whole number of females was 9, of whom 3 died.

Of the minor operations upon the lower extremity, during the same period of time, the following is a statement. There have been two partial amputations of the foot, through the articulation of the tarsus, and two through the metatarsal bones. In one of the latter cases, amputation through the whole five metatarsal bones was performed. In another, it was done through the first metatarsal bone. Disarticulation of the great toe was performed in thirteen instances; and amputation through one of the phalanges in two instances; of which operations in the great toe, ten were for frost-bites, and the others for injuries of various kinds. Disarticulation of one of the lesser toes in six instances, and through the phalanges in four; of which seven were for frost-bites, and three for injuries of various kinds.

Upon the upper extremity, amputation at the first carpo-metacarpal articulation in two instances, and, in one instance, the second and third; in another, the third and fourth; in another, the third, fourth and fifth; and in another, the fifth metacarpal bones were removed at this articulation. The thumb was amputated at the metacarpo-phalangeal articulation, in five instances; through the first phalanx in one, and at the phalangeal articulation in one instance. One patient had amputation performed through three of the metacarpal bones of the fingers; another, through two, and three others, each through one of those bones. Amputation of the finger was performed at the metacarpo-phalangeal articulation in twenty instances; through the first phalanx in one instance; at the first phalangeal articulalation in five instances; through the second phalanx in one; at the second phalangeal articulation in five instances, and through the last phalanx in one instance. Seventeen of these operations were for gun-shot wounds. None of the minor operations, upon either extremity, proved fatal.

Such being the facts in regard to the mortality of these operations, a word concerning the causes which have produced it. Mr. Phillips attributes the increased mortality in the city of London to the greater number of rail-road accidents that have happened within a few years past, and the same cause has undoubtedly produced a similar effect here. It will be readily admitted, that this class of accidents presents some of the most formidable, or even desperate cases in which amputation is ever demanded. In these cases the injury on account of which the operation is indicated, is most commonly attended with others of a serious character. Such patients, also, are not only very frequently without surgical attendance for many hours, and even for days, but are subjected to the additional hazard of transportation from a very considerable distance. Under this head might also be included a similar, and not uncommon class of accidents occurring at the landings of ferries. Making a distinct class of these injuries, it will be found that thirteen of the capital amputations above mentioned, were the result of such casualties, and no less than six of them unsuccessful.

Another class of accidents, which presents equally desperate cases, is that of extensive burns. Every one is aware of the great mortality which attends these accidents, where a great extent of surface is involved. Six amputations were performed for this cause. Two of the patients were males, and four were females; of which number three females died. Here, then, are two classes of amputations, in each of which, the mortality is nearly fifty per cent.

Two patients died of phthisis, after amputation of the forearm had been performed, for scrofulous disease of long standing. Two patients died of tetanus, one upon the ninth, and the other upon the seventh day, after amputation at the shoulder joint.

Four amputations were performed for malignant disease; of this number, three were so far cured, as to leave the hospital with a fair chance of reprieve for some time longer. One case was fatal; the disease in that instance attacking the lungs after the patient had so far recovered from the amputation, as to be up, and about his ward. In the successful cases, the recovery seems to have been very rapid.

Fourteen amputations of the thigh were performed for disease of the knee-joint. Only two of these cases were fatal; the patients in both instances, being black men. Including those just mentioned, four of the patients operated upon were blacks, and of these, three died;—a fact which, so far as it goes, tends to corroborate the common impression that amputation, or any severe operation, is not as well borne by blacks, as by whites.

By far the most common cause of the minor operations upon the upper extremity, was gunshot wounds, and upon the lower extremity, exposure to cold.

On the whole, then, though the mortality after capital operations of this class appears at first sight very great, it is impossible to avoid the conclusion that this result occurs rather *in spite*, than *on account*, of the operation itself. To adopt a contrary opinion, would be as rational as to condemn any agent in the materia medica proper, on account of the mortality which might happen, at any period after its administration.

The results obtained above, are similar in character to those presented by Drs. Norris and Hayward, in their respective papers upon this subject. In some particulars, they are less favourable than theirs, in others more so; accurate estimates, however, can only be formed from a large number of cases.

It would have been interesting, if those gentlemen had made separate classes of the amputations at the different joints, so as to show their comparative danger.

The very great mortality attending this class of operations in the Parisian hospitals, renders such information particularly desirable. Dr. Norris, however, mentions seven amputations "at the joints," of which four were cured, and three died. He has given a record of eighty amputations performed upon seventy-nine patients during ten years; while Dr. Hayward has reported seventy amputations performed upon sixty-seven patients during about eighteen years. So that we have an aggregate of two hundred and forty-one operations performed on two hundred and thirty-seven patients in civil hospitals in the United States, and under circumstances as nearly similar as we could expect to obtain. A brief summary of these data with regard to two or three of the more important points, is herewith presented.

	Philadelphia.	Boston.	N. York.	Total.
Whole number	79	67	91	237
Cured	57	52	65	174
Mortality per cent.	27.84	22.38	28.57	26.58
Upper extremity	32	10	33	75
Cured	27	9	26	62
Mortality	15.62	10.	21.21	12.73
Lower extremity	47	57	60	164
Cured	31	43	41	115
Mortality	34.04	24.55	31.66	29.87
For chronic disease	25	45	29	99
Cured	21	39	23	83
Mortality	16.	13.33	20.68	16.16
For injuries	54	22	62	138
Cured	37	12	43	92
Mortality	31.48	45.45	30.64	33:33

In the foregoing table, it will be seen that the numbers given, are those of the patients operated upon. The comparison might be extended to other points, but it is unnecessary to do so at this time.

The results here shown, are not discreditable to American surgery, as compared with European. Mr. Phillips gives the following, as a statement of the cases collected by him.

In France	203 cases	47 deaths, or	23.10 per cent.
In Germany	109 "	26 "	23.85 "
In America	95 "	24 "	25.26 "
In Great Britain	233 "	54 "	22.66 "

These statistics were obtained from a great variety of sources, by Mr. Phillips. He does not particularize the sources of his information with regard to America. Those in Great Britain were "drawn from a large number of hospitals, and from the *private practice of hospital surgeons*, selections being made, so as to render the result shown, a fair representation of what actually occurs."

Looking at single places, we find that,

For London, the cases amount to 107, and the deaths to 28, or 26.16 per cent.*

For Paris, according to M. Malgaigne, the cases amount to 560, the deaths to 299, or 53.39 per cent.

For three of our principal cities as given above, the cases amount to 237, the deaths to 53, or 26.58 per cent.

ART. III.—*Thoughts and Observations on Congestive Fever.* By CHARLES E. LAVENDER, M.D., of Selma, Alabama.

IN the following remarks, it is my purpose to be brief and practical; to avoid, as far as possible, theoretical disquisition, and to confine myself mainly, to such facts as have come under my own observation. By congestive fever is understood that form of autumnal disease, wherein the vital force is depressed, by the influence of miasmatic poison, below the point of successful reaction. In consequence of this depression of vital force, the heart is unable to give due circulation to the blood, which consequently becomes congested in the internal organs, and large venous trunks. If the vital energies do not fail in the onset, each succeeding paroxysm adds to this venous congestion, while the struggles of the heart grow fainter and fainter, till they cease altogether, unless, aided by the vigorous reaction of a powerful constitution, or by the use of effective remedies, it is aroused to an effort of such power and continuance, as to resist, and finally to overcome, the downward tendency.

This nomenclature may be significant enough, yet it is by no means free from objection. It sometimes happens that the patient dies in the first paroxysm, without any *febris* at all. At other times, there is a chill or cold stage followed by a state of comparative repose, but little or no reaction, to be succeeded by another and fatal cold stage. Venous congestion also doubtless exists in other forms of fever. This congestion, however, so far from being the seat, or proximate cause of the disease in question, is but an effect of the action of the poison upon the brain and nervous centres. A similar pathological condition may be superinduced by concussion, or other injury done to the brain. It is but a symptom of congestive fever. And could we with equal clearness see the workings of the cerebro-spinal and nervous systems, the motions and uses of their fluids, the degree of their intensity, the momentum with which they circulate, and the obstructions which they encounter, we could then advance another, and more satisfactory step in the investigation of this, as well as other forms of disease. These more obscure, yet vastly more important, vital and pathological phenomena have, unfortunately, been overlooked by many able pathologists, in their researches on the liver and venous congestion. Too much importance has doubtless been attached to the circulation of the blood, to the neglect of the nervous functions. The symptom has been elaborately investigated, while the cause has received comparatively little attention.

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* The apparent discrepancy between the statistics here given, and those of Mr. Phillips before given, results from the fact that, in presenting the general result, he has not confined his attention to the city of London, nor indeed to hospital practice.

A case that has assumed, and for some paroxysms maintained, the character of remittent or intermittent, may suddenly put on a congestive type. An attack, which at first assumed a congestive form, may, after a successful effort at reaction, wear the face of remittent or intermittent, of a mild character.

Many cases in their onset and progress, wear the livery of all three of these types; and might, at different stages, be set down under each of these heads. And sometimes, it would be no easy matter to decide upon the class to which a case properly belongs.

These facts clearly prove congestive fever to be, not a disease *sui generis*, but a form or modification, and that, too, the most violent and alarming, of the effects of miasmatic poison. It should be remembered, however, that congestive cases bear no fixed relative proportion to the number of autumnal fevers. It often happens, that a season passes by with but few well-marked cases of congestive fever, although bilious remittent and intermittent fevers prevail extensively. Such was the case, according to my observation, in the years 1832 and '34, in the valley of the Alabama river. At other times, the number of cases may be comparatively small, but the fever of a decidedly congestive type. Such was the case in the years 1835 and '36, when congestive fever first invaded this valley as an endemic. The years '40 and '41 were similarly marked; the former, which was extremely wet, being very sickly, with but few malignant cases; the latter, which was not so wet, but very hot, not so sickly, but with many more fatal cases. Since that time, no year has passed without congestive fever. It never appears early in the season; rarely before the first of August. The hotter and dryer, the earlier. It continues till after frost.

These facts would indicate that there is some constitutional peculiarity in this miasmatic poison, or in the electric state of the atmosphere, caused perhaps by long-continued and excessive heat, which gives type and character to the prevailing fevers of the season.

In its premonitories and its access, congestive fever presents but little to distinguish it from an ordinary attack of intermittent. There are more languor, more restlessness, and more debility. It is rarely the case that it makes its attack without a day or two of the ordinary premonitories of autumnal fever. It then approaches in the form of a chill. The patient is restless, and very much oppressed; skin pale and shriveled; extremities cold; features contracted; lips purple; tongue pointed, and of a leaden hue, or pale, cold and clammy; pulse feeble, quick, frequent, irregular, and intermitting; tendons corded; occasional rigors, and sometimes shaking chills, though the patient rarely complains of coldness. There is no acute pain, but a dull heavy aching in the head, back and limbs. Usually there is great thirst, with nausea and vomiting, but these symptoms are not always present. In place of febrile reaction, the surface grows colder, and is bedewed with a cold unnatural perspiration. There is an indescribable sense of restlessness and oppression, the patient remaining but a few seconds in any one position; on rising to his feet, he becomes giddy, staggers, and perhaps falls. He writhes under tormenting heat, calls for ice, desires to be fanned constantly, and to have cold water sprinkled on his face and breast, while his skin is as cold as the marble wet with the morning dew. In some cases, however, there is much morbid heat about the head and chest. A copious sweat suddenly breaks out, and as suddenly disappears; skin becomes motley and bluish, its sensibility impaired, impress of fingers remains some seconds after pressure is removed; sometimes ecchymosis in dependent parts; respiration irregular, with frequent sighing; great anxiety, countenance haggard; eyes suffused; a watery purging is sometimes a dangerous symptom, and hiccough a troublesome attendant. There is usually a most distressing sense of sinking down, and, to the patient himself, a most alarming incubus, or feeling of suffocation; he lies still, it may be for a minute, without breathing, then gasps for breath, makes short and hurried respiration; cries out that he shall die for want of breath; rises, advances hurriedly to the window, staggers, throws himself on another bed, or falls on the floor; the pulse has ceased to flutter at the wrist; a moment's unusual anguish, a gasp or two for breath, the heart ceases to beat, and death closes the scene in six or eight hours from the access, the sufferer retaining his senses to the last. At other times, death approaches under cover of a deep comatose sleep, of several hours' duration. Sometimes, though rarely, the paroxysm closes in convulsions.

The fatal moment is sometimes delayed a few hours by the free use of diffusible stimulants, in which case the patient usually dies comatose. At other times, partial reaction takes place; the skin becomes warm or even hot; extremities remaining cold; pulse may again be counted; from 150 it falls to 120; it may be the patient sleeps for some hours, or dozes on in painful and interrupted slumbers, to be followed the next twenty-four hours by another paroxysm, terminating in fatal collapse.

It must not be supposed that all cases of congestive fever are alike malignant, or marked by the same alarming symptoms and fatal results. Perfect reaction may terminate the first paroxysm in rapid convalescence. Partial reaction may take place; the next paroxysm may be less violent, and of shorter duration; this may be followed by reaction still more complete, and so on, till perfect innervation is restored, all the congested blood in the system put in motion, all the organs disengorged, with equalization of temperature, and of nervous energy; or the disease may run into well-marked remittent or intermittent. But most commonly, under proper treatment, complete reaction follows the first paroxysm; morbid action is then broken up, congestion removed, innervation restored, and the patient recovers rapidly.

There is scarcely an important organ which may not, during the progress of the disease, become the seat of local congestion. The spleen may become engorged to such an extent in a few hours, as to be found double its natural size. The same, to a less extent, may be said of the liver. Congestion of the lungs is an alarming occurrence, which doubtless always exists, to a greater or less extent, in this form of fever. The great oppression, laborious breathing, heaving of the chest, and sense of suffocation and sinking down, denote such a state. But of all the local congestions that attend upon this form of disease, that of the brain is most alarming, least manageable, and most fatal. It is marked by deep coma, low muttering delirium, rolling of the head on the pillow, a drawing of the head backwards, dilatation of pupils, optic illusions; and if partial reaction takes place, raging delirium may come on.

Unfortunately for young practitioners at the South, their knowledge of this formidable disease is chiefly drawn from the well studied lectures of professors who never met with it in practice, or from the ponderous volumes of writers on general therapeutics, to whom congestive fever is a matter of history. The most unwelcome, and perhaps the most useful, lesson that such a practitioner ever learns, is taught him by the first well-marked cases of this type with which he meets.

That the character of the disease in question, as it makes its appearance in this latitude, may be properly apprehended, I introduce a few cases from my note book, which terminated fatally, without treatment.

Case I.—B. D., ætat. 16, good health and temperament; experienced a light chill 3d Sept. '41; little reaction; copious perspiration; restless, and very much oppressed.

4th. Somewhat languid, but no particular complaint.

5th. Cold stage at 8 A. M.; shivering at intervals, alternating with flashes of heat, for two hours; extremely restless and oppressed; could not be confined in bed; would rise, stagger, and sometimes fall; surface very cold, but complained of much heat. At 12 o'clock, without febrile reaction; profuse perspiration; at first warm about the head and chest, but soon becoming cold and icy; confusion of intellect; optic illusions; twitching of tendons. In less than an hour, watery purging; low delirium. When I saw him at 3 P. M., he was dying convulsed.

Case II.—P. D., ætat. 14, brother to the above; a sprightly boy, of good temperament, was attacked on the 7th Sept., two days after the death of his brother; some chilliness, followed by deep sleep and copious sweat, but little, if any, fever; restless night.

8th. Walked about the farm; insisted he was well; took no medicine.

9th. Rose early, dressed, and went out. Came in at seven, with a chill; threw himself on the floor, and went to sleep. In an hour, was sweating profusely; in another was cold, and could not be waked. At 9, his mother became alarmed, and sent for me. When I arrived at 12, the boy had been dead one hour. Although the surface was cold and clammy when he died, two hours afterwards it was dry and of natural warmth. Even the extremities, tips of the nose and ears were warm, and the countenance natural in appearance.

Case III.—Mr. K. a labouring man, aged 38, 24th July '41, felt some indisposition, restlessness, with sense of impending danger; some rigors, with hot flashes, but no fever.

25th. Somewhat indisposed, but rode four miles to mill, and returned in the afternoon. Passed a very uncomfortable night, tossing in bed, and labouring for breath; at times rising and going to the door; surface cold, but complaining of internal heat.

26th. Felt somewhat better in the morning; but soon the distressing symptoms returned, with increased force. Some shuddering at first; soon became cold, but would not be covered; nor remain long in bed; on rising, would reel, with sense of falling forward; complained of great heat, and went from bed to bed, in search of a cooler place; drank often of cold water, no relief; occasional emesis; cold sweat. When I saw him at 2 P. M., the whole surface was of that peculiar icy coldness, painful to the touch, and damp with clammy sweat; skin pale and shriveled; features shrunken and cadaverous; countenance unnatural, and marked with deep distress; pulse gone from the wrist; heart fluttering rapidly, but feebly; tongue pointed, pale, and cold; breathing laboured, interrupted, and greatly oppressed; breath cold; complained of "burning up;" that he should "die for want of breath;" would not remain half a minute in one position, nor suffer the lightest covering; rose rapidly from bed, staggered to the door, and returned as hastily to bed; spoke rationally; no appearance of delirium. Took quin., camph., ammon., &c.; no perceptible effect. About 3, rose hastily; said he should die if he did not get fresh air; lay down on the floor, remained quietly on his side for a few seconds, perhaps without breathing; turned on his back, exclaimed "I'm gone," and breathed no more.

Cases like these, terminating fatally on the third day, or in the first well-marked paroxysm, often occur, during a season in which "congestive chills" prevail.

Treatment.—In order to arrest a disease like this, tending with such fearful rapidity to a fatal termination, the most prompt, vigorous, and well-directed treatment is necessary. In this, above all other diseases of a general character, *time* is of the most vital importance. One hour's indecision may prove fatal. With the first three or four hours after the case becomes alarming, all may be lost. And yet, when properly treated, there is no disease to which the physician, who loves his profession, can point with prouder satisfaction.

Blood-letting, which is always a most hazardous operation in this form of disease, if resorted to at all, should be accompanied by the most powerful internal and external stimulants. Brandy, quinine, camphor internally, sinapisms to the spine and epigastrium, and hot applications to the extremities, while a small orifice is made, as I prefer, in the external jugular vein. As the blood runs slowly, the finger should be placed upon the pulse, and its changes carefully noted. If it waver, become more feeble, frequent or intermitting, the vein should be instantly closed. If the pulse increase in force or volume, and not in frequency, the bleeding being serviceable, may be carried to considerable extent. Even then it is more safe to bleed very moderately, and to repeat in an hour or two, if thought advisable, than to make a large bleeding at once. For it will sometimes happen that the pulse maintains its force and volume through the operation, and even for some time afterwards, and then suddenly sinks, perhaps to rise no more.

In case *second*, two hours after death, I found the jugulars very much distended, one of which was opened, and a pint of black blood discharged. This blood was evidently regurgitated, and was with difficulty restrained by means of an adhesive strip, the urgency of my engagements at the time, preventing a more extended observation. On the following day, occurred

Case IV.—H. S., ætat. 18, after a day or two of the usual premonitories, at 10 A. M., Sept. 10th, 1841, became cold, restless, oppressed, with occasional rigors; could not be confined to his room; lay a few minutes in one bed, and then hurried to another. Extremities cold to the body, but some morbid heat about the head and chest. Was put into the warm bath, fainted, and was with some difficulty restored. Saw him at 6 P. M. Pulse barely perceptible at the wrist, 150, deep seated, thready and intermitting; skin very cold, but much complaint of heat, and sense of suffocation; frequent sighing, and interrupted respiration; remains but a minute in one position, and will not be covered; some watery purging; countenance pale, shriveled, and anxious; eyes suffused and watery; intellect good. Ordered, immediately, brandy, camph. and laud., with frictions of dry mustard. Was preparing sinapisms, when the attendants cried out "he is dead." On approaching the bed, found him motionless and pulseless; breathing had ceased, and no motion could be felt over the region of the heart; jugulars much distended. With the case of the day before fresh in my mind, I instantly opened a jugular vein, which bled freely. In about one minute after the blood began to flow, the patient breathed, and the pulsations of the heart were again manifest. Sinapisms, lotions, frictions. Brandy and water, almost thickened with quinine and camphor, thrown into the stomach. In ten minutes he breathed freely, and swallowed without difficulty. In twenty minutes, he spoke rationally, and took readily whatever was offered to him; pulse could be counted at the wrist, 150. For some hours he rested well, and hopes were entertained of successful reaction. He sunk eight hours after the bleeding.

Case V.—Sancho, a coloured man, ætat. 35, taken on the 4th Sept. '42, without any premonitory symptoms, and soon sunk into collapse. Saw him at 10 P. M., 8 hours after access. Insensible; low muttering delirium, and rolling on the floor, but now quiet; eyes fixed; pulse a mere flutter; breathing laborious and rattling; supposed to be dying.

The brain appearing to be the seat of congestion, he having been insensible from the access, opened a temporal artery; bled imperfectly; opened a jugular; bled freely, at intervals, for an hour or two, with marked improvement of symptoms—about f℥xx; rubbed all over with spts. capsicum and mustard; cold dash to head, sinapisms to feet; stim. enemata; spts. quin., camph. liberally. In the course of 12 hours, one drachm calomel had established free secretion from the liver and bowels; reaction took place; a common remittent followed, which yielded to ordinary remedies.

Although a few cases like the above, have induced me favourably to regard bleeding from the jugular vein, in desperate cases of congestive fever, or in which congestion of the brain exists, yet am I compelled to regard the use of the lancet, in this malignant form of miasmatic disease, as a most hazardous and often fatal practice.

During the progress of reaction from a congestive chill, inflammation of the stomach, liver, or other important organ, sometimes makes its appearance, accompanied by fever of high excitement, as a sequela of the engorgement of these organs. Such cases may require topical, and if the inflammatory symptoms run high, general blood-letting. But while the distinctive symptoms of congestion remain, while there are great restlessness and oppression, quick, intermitting or compressible pulse, laborious breathing, especially if there is no congestion of the brain—the lancet should not, for a moment, be thought of. Even where the symptoms have, in a measure, given way, and reaction been partially established; when the heat becomes equalized, oppression alleviated, pulse full, and slightly resisting—even then, a small bleeding may, and a large one will, almost inevitably, bring on a rapid and fatal collapse.

There is yet another condition that deserves marked attention, because it is so likely to betray the young practitioner into the use of the lancet. It is when a congestive attack has yielded to the influence of quinine; reaction appears to be complete, natural temperature is restored to the surface, pulse becomes full and flowing, with a peculiar swell under the finger, and slight sensation of resistance. At the same time there is a feeling of restlessness and apprehension; dull headache, with fullness of superficial veins. The patient complains of oppression, and often requests to be bled. Open a vein, and the blood flows freely, looks dark and thick. When eight or twelve ounces have been drawn, the bleeding suddenly stops, the venous fullness has left the surface, which becomes pale and shrunken; the pulse quick and thread-like; an indescribable sense of sinking comes over the patient; he cannot be controlled, but tosses in bed, or rises to his feet and falls. In a few hours death closes the scene. At other times you may bleed freely, in such cases as the above, with relief to the head, and no perceptible ill effects for one or two hours after the bleeding, and when you begin to congratulate yourself upon your success, the patient becomes faint, nausea and vomiting follow, and a few hours may close the scene.

In this latitude, fevers of any kind do not bear the lancet well. Congestive fever does not make its appearance till the system is greatly weakened by long-continued and excessive heat. When it has made its attack, the vital force is very much exhausted, and the patient is fast falling into collapse. In such a case as this, I would earnestly say to my young professional brethren—Beware of the lancet! Be assured, without proving by sad experience, that the lancet, instead of being " the anchor of hope,'' is, emphatically, the sickle of death in congestive fever.

Emetics are decidedly hurtful in congestive fever, unless it be to unload the stomach at the onset, and this nature rarely leaves for the physician to do. When necessary, mustard, or ipecacuanha in an infusion of capsicum, is to be preferred. In most cases, irritability of stomach is a most troublesome symptom, which emetics tend to excite and to aggravate, rather than to allay. Nothing, perhaps, except the lancet, is more effectual in driving into hopeless collapse a case of congestive fever than an emetic, and especially an antimonial one.

Cathartics of a drastic or hydragogue character, are scarcely less objectionable than emetics. The very worst consequences may always be expected from their use. Collapse, fatal, if not speedily remedied, is often the consequence of an active cathartic. This fact, and the treatment necessary to insure reaction, may be more clearly illustrated by an example.

Case VI.—Mr. L., planter, æt. 40, had chills, followed by some fever; with dull headache, inability to walk without reeling, and sense of falling forward. Before the third paroxysm, took a dose of jalap and crem. tart., which operated copiously. In a few hours, chill came on; no reaction; purging still continued. Spent a restless night.

Sept. 19*th*, 1842. Saw him at 9 A. M., day after the cathartic. Catharsis still continued; surface cold and damp as marble in the morning dew, yet complaining of intolerable heat; pulseless at wrist; great anxiety; cannot rest a minute in any position; will not suffer the lightest covering; great thirst—drinks and rejects; delirious, pulling at the bed, and catching at the air; will not allow himself rubbed; tears off all applications; capillaries congested; surface purple.

Gave at once 40 drops of laudanum, 10 grs. sulph. quin., 2 grs. g. camph. in brandy and water. Cold affusions. Repeated the quin. and camph. in one hour, afterwards, every two hours. Catharsis and emesis ceased; skin soon became warm, and resumed its proper colour; pulse returned to the wrist. In six hours, he was restored to his proper senses, and a calm sleep followed. He was kept fully under the influence of the quinine, about 2 grs. per hour, for forty-eight hours, when a mild laxative of rhubarb and magnesia completed the treatment. No chill or fever followed.

And yet, cathartics of a proper character are valuable in congestive fever, and in some cases indispensable. If the patient, after the first paroxysm, be put promptly under the influence of quinine, and so continued for forty-eight hours, or until the time for a second paroxysm has been passed in safety, a mild cathartic or two will complete the cure. But when two or three paroxysms have elapsed—when the viscera become engorged with blood, secretions vitiated or suppressed, tongue furred—in these cases, more active cathartics are necessary. Everything, however, depends upon the character of the cathartic, and the manner of its operation. While a dose of active medicine, causing free watery purging, would, if uncontrolled, be attended with dangerous, if not fatal consequences, that remedy which acts upon the liver in the production of dark, consistent bilious operations, is full of hope. In the fulfilment of this important indication, nothing is so much to be relied upon as a mercurial. Let this secretion be established by the use of calomel, or blue mass, and milder means, as rhubarb and magnesia, may be substituted.

Quinine is fully proved by experience to be the *great remedy*, in all cases of marked periodicity, and emphatically so in *congestive chills*. At what time it should be administered, is no longer a question. No time should be wasted in useless efforts to prepare the system for its reception. The patient should be put promptly under its influence, and continued under it until all fear of a congestive chill has passed. What quantity should be given is not now so important a question as it was once held to be. The effect is a vastly more important consideration than the amount of the remedy necessary to secure that effect. Five grains will do as much in one case, as twenty in another. In the same case, five grains will effect as much at one time, as twenty grains at another time. Miasm is a poison that acts by depressing the vital force; but as a given amount of miasm will not produce the same degree of prostration in all persons who are subjected to its influence, so will not the same dose of quinine be attended with similar results in all cases. The quantity must be proportioned to the susceptibility of the nervous centres to be acted upon, the aptitude of the vital telegraph to convey the impression, and the venous and nervous congestion to be overcome.

When a well-marked case of congestive fever, or one of a doubtful character, presents itself, five, ten, or, if it be an urgent case, twenty grains of quinine ought to be administered at once, and repeated every hour or two, till its characteristic effects are manifest. This being done, the pulse becomes more firm, and somewhat flowing, with a peculiar swell, regular, and twenty or thirty beats in the minute less frequent; the tongue becomes moist, and less pointed; skin dry and warm, or, if there has been morbid heat, the surface becomes preternaturally cool, the intolerable inward heat and oppression greatly mitigated, headache and restlessness in a measure removed; patient becomes calm, and perhaps sleeps. When the system comes fully under the influence of the remedy, its peculiar action on the brain is made known by a sense of fullness and ringing, or roaring, in the ears. This state of things being superinduced, two or three grains per hour, or four grains every four hours, will be sufficient, in most cases, to guard the patient against another paroxysm. An hour or two, however, before the chill is anticipated, a larger dose should be administered. Much care ought to be taken that the effects of the remedy be not suffered to expire, till all fear of a chill has passed. If general reaction be established, breathing free, circulation vigorous, sensorium undisturbed, little danger need be apprehended, for the case is safely under the control of the remedy. If the hour at which the previous chill occurred, be safely passed the following day, there is strong hope that no other paroxysm will follow. And if the same hour be passed the third day, in safety, that hope becomes confirmed. A mild cathartic, and a few more grains of quinine, will complete the cure.

It sometimes happens that quinine causes an almost uncontrollable irritability of the stomach, and at other times, a very disagreeable fullness of the brain, and ringing in the ears, seeming to spend its force upon the brain, without influencing the circulation. In the former case, I usually add $\frac{1}{8}$ gr. of morphium, and in the latter, a grain or two of ipecac. In cases where quinine seemed inadmissible, I have substituted, with happy consequences, a combination of camphor and opium, with a small portion of ipecac., in brandy, if the stomach will bear it. I seldom risk the case with a single remedy, but prefer the following combination: ℞.—S. quinin. grs. iv; g. camph. grs. ij; pulv. ipecac. gr. ss; g. opi. gr. $\frac{1}{4}$, to be taken every two hours; varying the proportions, of course, to suit the case.

When taken in large doses, by a person in health, quinine increases the frequency of the pulse eight or ten beats in the minute, augments its volume, and gives to it a peculiar and somewhat resisting swell, not readily mistaken by one accustomed to it. Give one or two grains to a man in open fever, and you add to the excitement, and sometimes bring on headache and slight delirium, as I have seen. Give ten grains in such case, and you allay febrile excitement, have a full, flowing, quinine pulse, cool, moist skin, sensorium clear, and no complaint of heat or thirst. This is one of the great peculiarities of this medicine. Give ten or twenty grains to a patient in congestive chill, or in that stage when a feeble effort is being made at reaction, and in an hour or two the pulse will be found *lessened* in frequency twenty or more beats in the minute, but much *increased* in force and volume; with abatement of all the urgent symptoms. The good effects of a single dose will sometimes be felt for twenty-four hours, or longer; and in some cases, no repetition of the remedy will be found necessary. Instances similar to the following abound in my note-book.

Case VII.—Dr. H., æt. 35, full habit, good temperament, had been for some days labouring under remittent fever, which had assumed a congestive character. A crisis was approaching about 6 P.M. Had been taking calomel 20 grs., s. quin. 5 grs., g. camph. 2 grs., every two hours through the day, with no sensible effect; sinking hourly. Met his attending physician, who had been with him all day, and who was so fully convinced that the patient must die, that he would not return with me.

Found him, at 6 P. M., covered with a cold, clammy sweat; extremities cold to the body; some morbid heat about the chest; pulse a mere flutter, not to be counted; skin purple; impression of the finger remains a minute or more; great restlessness; oppressed and laborious breathing; tongue furred, leaden colour, pointed and clammy; intellect somewhat wandering. Mixed 20 grs. quin. in half a tumbler of brandy and water. On being raised from his pillow, made a hasty and rather convulsive effort to swallow, spilled one-half, rejected what he had swallowed, and fell back, exhausted. Having in my hand another portion of twenty grains, put it into the tumbler, which still held some grains of the first, and gave it all, with some difficulty, in cold water.

In twenty minutes, the circulation was under the influence of the quinine, and the pulse, in a few hours, became distinct. For thirty-six hours, the peculiar effects of quinine, a swelling pulse, with tingling in the ears, continued, although not another grain was given. One hour after the quinine, the patient swallowed 100 grs. cal., which dose was repeated in three hours. Before morning, black bile was discharged freely, and the urgent symptoms gave way. Some days of fever, of a remittent type, followed, which yielded to the usual treatment.

I am by no means persuaded that quinine is a harmless agent, and may be given, in almost any quantity, without producing hurtful consequences. When pushed too far, painful fullness of the brain, alarming sounds, and ringing in the ears, deafness, slight delirium, twitching of tendons and hiccough, will be some of the consequences. Caution must, therefore, be exercised, not to push this valuable remedy too far. Overwork the brain, and the vital powers may become exhausted by too long-continued and excessive action. In this way, I have no doubt, frequently repeated heroic doses of quinine exhaust the vital powers, cause indirect debility, and thus hasten that very collapse which quinine, judiciously administered, is so well calculated to avert.

In like manner, brandy, and other stimulants, though valuable in supporting the vital force, and preventing collapse, or in arousing the system from that state, and for such purposes, may be given in large quantities; yet may they be pushed too far, or be continued too long, and thereby aid in producing that condition which they were intended to prevent. They are useful, and may be given liberally, while they act in harmony with the system, quiet the stomach, soothe the brain, and invigorate the circulation. But if they cause nausea, pain in the stomach, headache, or symptoms of intoxication, they should be used more cautiously, or be discontinued altogether. A patient who may have borne a pint of brandy in twelve hours before reaction, may not bear an ounce afterwards. The same observation is applicable to quinine. Although twenty grains of the sulphate may have been taken, with the most decided benefit, in a case of collapse, or in a case of congestive chill threatening collapse, yet, when reaction has been established, one grain may be sufficient, and even that not always required, and sometimes hurtful.

Calomel, as has been observed, is often useful, and sometimes indispensable. If, by the timely exhibition of quinine, congestion be broken up, and reaction fully restored at an early stage of the attack, little further treatment will be needed. But when reaction is incomplete, with vitiated or suspended secretions, calomel should be given, so as to act upon the secreting organs, and chiefly upon the liver. Let this action be made known by the appearance of dark vitiated bile; let it be continued by moderate doses of calomel, or rhubarb and blue mass, till the secretions become healthy, and the patient is safe. Let the vital force be sustained by the use of quinine, and if there be not congestion of the brain when the bile begins to flow, the danger is passed. At least, I never saw a case that did not, under such circumstances, recover. The dose of calomel is to be decided by the necessities of the case. In a majority of cases, 10 grs. every two or three hours will be sufficient. ℞.—Calomel grs. x; quin. grs. v; ipecac. gr. j; morph. gr. ¼; pil. hydrarg. q. s. Ft. pil. sum. quart. hs.

In many cases, quinine cannot, for a moment, be retained on the stomach. Roll it in blue mass, and the difficulty is sometimes obviated. Administer largely per enema. Draw a blister speedily, and dress it with quinine. The system may be brought under its influence, and the patient saved.

But quinine, like all other remedies, will sometimes fail us. Twenty, forty, or one hundred grains may have been taken. Its action on the brain may be apparent. Strange sounds distract the ears. The patient may imagine himself in a thunder-storm, with lightnings flashing in his closed eyes, and burning in his brain, and still be sinking all the time.—The remedy, pushed too far, is doing mischief. Failing to counteract the disease, it has attacked the vital organs, and is prostrating still further the vital force. A grain of morphine will not give a moment's rest. Diffusible stimuli only add fuel to the flame that burns within, and are immediately rejected. Rubefacients have been used till the skin is sore; and the capillary vessels congested till the surface is purple. The patient rolls from side to side, and throws his limbs in every direction; calls for ice or cold water, which is rejected as soon as swallowed; calls upon the attendants to fan him, and to sprinkle water on his face, to save him from dying.

What, under these alarming circumstances, is to be done? I know of nothing better—and *the emergency has often presented itself to me*, in all its fearful realities—I know of nothing better than large doses of calomel, repeated every two hours till a decided impression is made; accompanied, at the same time, with the cold dash, or cold affusions. The case, as supposed, though alarming, is not altogether hopeless. A large dose of calomel, when swallowed, will be retained. These doses do not, in such cases, purge actively. So soon as their influence is felt upon the system, the patient becomes more quiet, complains less of heat; while the surface becomes warmer, heat more generally diffused, pulse stronger and less frequent. Free hepatic secretion is concomitant with, or soon follows, this state of things. Much smaller doses, or milder means, may be sufficient to keep up this action. Let this be done, and, with ordinary prudence, the patient will recover.

Ptyalism I do not regard with favour. Salivation will not arrest a congestive chill, as I have experienced in my own case.

Rubefacients, sinapisms, lotions, spts. turpentine, should be promptly and perseveringly applied to spine, epigastrium and extremities. If the patient will suffer no applications, rub him well with dry mustard, or spirits and capsicum, or spts. turpentine. If he will lie on his back, apply a sinapism, or flannel roller wet with spts. turpentine, the full length of the spine. The following case may serve, among other purposes, to show the value of persevering in the use of external means.

CASE VIII.—D. S., æt. 8, cold stage, P. M., 8th Sept., 1841, followed by high excitement, which soon, and suddenly, ceased, and he became cold and pulseless. Stimulants were resorted to.

9th. Saw him at 2 A.M., for the first time. Pulse thread-like and irregular, 130 to 140; tongue dry, pointed, leaden hue, red edges; delirium; muttering; distress; skin cold and clammy; some morbid heat in the head; great thirst; rejects everything that is swallowed; remains but a few seconds in one position. On moving from side to back, or vice versâ, breathes six or eight times, hurried, half-inspirations; ceases to breathe from eight to twelve seconds, then draws a long inspiration, mutters, or calls out incoherently, and changes position. ℞.—Statim, cal. grs. xx.; quin. grs. ij; g. camph. gr. j. Sinapisms, frictions.—Calomel grs. v; quin. gr. j; camph. gr. ss; carb. ammon. gr. ss: 2 hs.

4 P.M. Worse. Pulse fluttering, and too indistinct to be counted; sub. tend. singult. picking at the bedclothes, apparently moribund. Gave morph. gr. $\frac{1}{8}$ in brandy. Rub him all over with hot medicated spirits, and spts. turpentine, and apply mustard poultices to extremities and epigastrium. ℞.—Cal. grs. xx; ipecac. gr. j; morph. gr. $\frac{1}{8}$; mass. hydrarg. q. s. Ft. pil. sum. quart. hs.—Camph. quin., C. ammon., āā gr. i; sum. uterq. horâ. Cold dash, and cold applications to head. Warm bath, fainted; restored with difficulty.

10th. 8 A. M. Has not rested five minutes through the night. No improvement in any of the symptoms; low delirium, mutters, and occasionally cries out. Cadaverous look and smell. Sponge him all over with the medicated spts., and envelop him bodily in a strong mustard poultice. Continue treatment. 6 P. M. Sleeping. Several discharges of black bile; feet warm, but hands and arms cold, though not so damp; pulse 130, regular; tongue moist; respiration 30, regular. Slept one hour; the first rest for as much as five minutes, for 48 hours. ℞.—Compound cal. pil. every 4 hs., and comp. quin. pil. every 2 hs. Continue poultice.

11*th*. 8 A. M. Rested. Slept 2 hours; warm; pulse 120, regular, more soft and full; tongue moist and furred; slight ptyalism. Four free discharges of black bile. ℞.—Pil. rhei., chicken water, rice water. 12*th*. Much better. Dark bilious matter copious. Continue treat. 13*th*. Convalescent.

Anodynes are peculiarly serviceable in this form of fever. Opiates are best; and no article of this class can give more satisfaction than the salts of morphium. In easing pain, in quieting intolerable restlessness and anxiety, in mitigating bodily and mental anguish, in superinducing temporary forgetfulness of suffering and danger, in soothing nervous irritability, in allaying spasm, and thereby removing impediments to reaction, and thus promoting secretion, morphium has no rival, and may justly be called "the divine remedy." A compound of ipecac. gr. j, s. morph. gr. ⅛, given with calomel, promotes its action; with quinine, it is peculiarly useful in obviating, or in mitigating the unpleasant effects of that remedy on the brain and nervous system. There are but few cases of congestive fever which are not, at some period of their progress, largely benefitted by the use of morphine. Where continued irritability of stomach exists, it may be introduced by enema, or used endermically. Care should be taken that an over-dose be not administered, in this way, as I have seen one grain, applied to a recently blistered surface, cause decidedly narcotic effects.

Cool acidulated drinks, ice water, lumps of ice, juice of acid and subacid fruits, as lemons, oranges, pomegranates and grapes, are very useful in allaying thirst and mitigating internal heat.

The Cold Dash, or cold bath, as a remedy in this fever, yet remains to be noticed. In miasmatic fevers of high excitement, especially where there is much determination to the head, there can be but little doubt of the good effects of the cold bath. But in fevers of a congestive type, where the extremities are cold, its propriety becomes more questionable. In these cases, I make the feelings of the patient my criterion. If I find morbid heat about the head and chest—if cool drinks are grateful to the stomach, and cold applications cause a pleasant sensation, I use the cold bath or cold effusions freely. But where they cause, as they sometimes do, a disagreeable chilly feeling, I continue hot applications and frictions.

Having decided upon the use of the cold bath, if the patient is able to sit up, he is placed over a large vessel, with his feet in water as hot as he can well bear it, and cold water poured freely over his body, till he complains of feeling cool. If not able to sit up, he is placed on a mattress, or on thick blankets, warm applications are made to his feet, and cold water poured freely and steadily over his body for five minutes or more. Nothing can be more refreshing. On being replaced in dry sheets, he rests more quietly, and sometimes sleeps; perhaps a healthful glow appears on the surface, and his condition is favourable for the action of medicine. In obstinate cases, to secure the good effects of the cold bath, it must be frequently repeated; or the patient may be for some time enveloped in sheets wrung out of cold water.

Case IX.—Mary J., æt. 14, bilious-nervous temperment, after some days of languor and oppression, with some chilliness, was attacked on the 7th Aug. '47; cold, but complained of great heat. Dark green matter by catharsis, yellow by emesis. Was raised in bed, fainted, and continued extremely faint, and much oppressed in breathing, with nausea.

5 *o'clock* P. M. Pulse thread-like, one hundred and eighty to the minute, at times not to be felt at the wrist: tongue clammy, leaden centre, pale edges; skin cold and damp; complains of heat; frequent rolling of head and tossing of limbs; dullness of seeing and hearing; intellect dull. ℞.—Statim, s. quin. grs. v; s. morph. gr. $\frac{1}{4}$; g. camph. gr. j; frictions, sinapisms. ℞.—Quin. grs. iv; camp. gr. j, every hour; cal. grs. iv; ipecac. gr. j; morph. gr. $\frac{1}{4}$, every 4 hours.

8*th.* A. M. Passed a restless night. Pulse 160, otherwise as before; no action on bowels; nausea subsided; tongue dry; skin soft and natural; pupils dilated; dullness of senses and restlessness as before; respiration oppressed and irregular—4 to 6 half inspirations, and then a full one, at which the patient opens her eyes wide, and changes position. ℞.—Quin. grs. v, camph. gr. i, every two hours. Calomel and camph. as before. Sinapisms, frictions.

P. M. No marked alteration. Continue treatment.

Ecchymosis in all the dependent surface, from head to foot. Back, thighs, &c., of dark blue ground, with black splotches covering near half the surface. Frictions, spts. turpentine, and ess. oils.

9*th.* Passed a restless night. Slight delirium. No abatement or alteration worth noting. Continue treatment. P. M. Considerable excitement. Pulse of more force, but irregular, 144; breathing much oppressed. Skin dry and very hot—so much so as to be painful to the touch. Tongue and fauces dry, much thirst; no action on bowels; cannot rest two minutes in one position. Cold applications grateful. *Cold bath*, by placing the patient in sheets that had been dipped in cold spring water, and covering well with blankets; hot applications to the feet; considerable shock. At first, respiration short and interrupted; in ten minutes, patient became composed; in fifteen minutes, slept calmly; respiration regular and free, 22; pulse more distinct and regular, 120. Repeated affusions. Slept 30 minutes. Remained in bath 90 minutes. Complained of feeling cool; surface still warm. Wiped with warm towels, and put in dry sheets. Felt more comfortable, and rested better. ℞.—Cal. gr. x, spts. nitre. One hour after the bathing, perspiration general and warm. Rested tolerably well through the night.

10*th.* Pulse 120, full and regular; tongue moist; senses normal; some bilious stools—5 through the day. ℞.—Quin. grs. iv, every 4 hours. Rhubarb and magnesia in small doses.

11*th.* Slept two hours at a time through the night. Three stools of bilious character; pulse 95, full and regular; skin warm and moist; tongue nearly clean; ecchymosis red, absorption going on. ℞.—Quin. grs. iv every 6 hs. magnes. nocte.

12*th.* Convalescent; ecchymosis disappearing; soreness in the limbs, and along the large muscles; secretions free and nearly normal. Convalescence rapid. No ptyalism.

The *cold dash* in cases of collapse, and in congestive fever falling into that state, is a bolder practice. In such cases, it appears to act revulsively, through the capillary nerves, on the brain and ganglionic system, arousing them to renewed action, as in case of catalepsy. Be this as it may, I have often had recourse to its use, and have in no instance had cause to regret the practice. It aids powerfully in arousing capillary circulation, in equalizing heat, in quenching the fire that burns within, and restoring warmth to the surface. I offer a case by way of illustration.

Case X. Esther, a coloured woman, aged 35; chill 7th Aug. '40; little or no reaction; great restlessness; copious sweat. As most of the family were down with fever, and not enough well to wait on the sick, no further note was taken of this woman, till I found her, on the 9th, collapsed, cold, clammy, pulseless, delirious, rolling on the floor; tongue pale and pointed; respiration hurried and laborious. Gave with some difficulty, twenty grains of quinine. Had her laid on boards, and ten gallons of cold spring water poured over her in about five minutes, then rolled in dry blankets. In half an hour, there were decided symptoms of reaction. In four hours, the quinine and cold dash were repeated; in four hours more, warmth was restored to the surface; pulse 108; resting well. ℞.—Quin. grs. iv; camph. gr. j; ipecac. gr. ss, m. sum. 2 hs. Kept the patient under the influence of the quinine for 48 hours, when a small dose of rhubarb and magnesia completed the treatment. No return of chill or fever.

Whether or not the cold dash in such cases as the above, unaided and alone, would bring about successful reaction, must be decided by a bolder practitioner than I am, while I hold in my hand such a remedy as quinine. I have found nothing more effectual in arousing the circulation in cases of collapse; for which purpose it may be again and again repeated. Especially is the cold dash serviceable in cases attended with great irritability of stomach, or where quinine determines too powerfully to the brain, or where there is much morbid heat about the head and chest. In such cases, it acts more promptly, and perhaps more vigorously, than hot applications. Nor are they at all incompatible with each other. Nor is the cold dash incompatible with the vigorous use of calomel. On the contrary, it promotes the action of that remedy, by bringing the system to a proper secreting point, and by sustaining the vital force, till the calomel has time to act. It was my intention to introduce some cases illustrative of the foregoing remarks, but my essay has already reached the limit which I had prescribed to it.

Selma, Ala., April 1848.

ART. IV.—*Further Observations on Trismus Nascentium, with Cases illustrating its Etiology and Treatment.* By J. MARION SIMS, M. D., of Montgomery, Ala.

SINCE the publication of my first paper on this subject, (*Amer. Journ. Med. Sci.*, April, 1846,) new facts and observations have developed new truths, and detected the errors into which I had fallen. They will show that some of my first positions are untenable. For instance, I said that a *deficient ossification* of the cranial bones was essential to the production of the disease. This I must recall; for, as a general rule, the very reverse is the fact. The *deficient ossification* alluded to, was not intended to be understood as a *pathological* condition, but simply the *physiological* state so necessary to a safe and easy parturition.

Another point on which I was in error, is the "dorsal decubitus." I find that children may have trismus, and at the same time, be kept on a feather bed, and that, too, when they are laid upon (what mothers usually call) *the side.*

The next error that I have to correct is in regard to "spinal hemorrhage." The sequel will show that, under certain circumstances, a child may die of trismus in its most aggravated form, and yet have no extravasation within the spine.

But while these positions are admitted to be erroneous, there are others which are fully sustained by every fact that has fallen under my observation, viz:—That trismus nascentium is a disease of centric origin, depending upon a mechanical pressure exerted on the medulla oblongata, and its nerves; that this pressure is the result, most generally, of an inward displacement of the occipital bone, often very perceptible, but sometimes so *slight* as to be detected with difficulty; that this displaced condition of the occiput is one of the fixed physiological laws of the parturient state; that when it persists for any length of time after birth, it becomes a pathological condition, capable of producing all the symptoms characterizing trismus nascentium, which are instantly relieved, simply by rectifying this abnormal displacement, and thereby removing the pressure from the base of the brain.

These are simple truths, mere corollaries, plainly deducible from facts which I shall now proceed to relate, throwing in occasionally some practical remarks, naturally suggested by individual cases, as proper to the elucidation of the subject generally.

CASE I.—Dr. Hogan, writing to the editors of the *New Orleans Med. and Surg. Journ.*, July, 1846, p. 136, says, "I have met with a case of trismus nascentium at the sixth day, since Dr. Sims' paper was published in the *Amer. Journ. Med. Sci.* I found the child upon its back, '*with the occiput shoved in*,' spasms occurring upon the slightest noise or touch. It was in articulo mortis. I left it dying. I called too late in the afternoon to make a post-mortem examination."

CASE II.—For this case I am indebted to Mr. J. C. Duncan, of Illinois. I copy it from his letter bearing date "Bloomington, August 9th, 1846."

"Four days since I received your pamphlet on trismus nascentium. The description of the disease immediately reminded me that the child of a near neighbour had been suffering under precisely the same symptoms for two days past, and was then supposed to be dying. The attending physician had declared it to be inflammation of the brain, and that death must ensue. The child was fourteen days old. Mrs. D., after hearing a brief narration of the contents of your paper, hurried away to the sick room to examine the child's head. The child had lain *on its back all its life.* She raised it up and found that *the back of the head had all sunk in.* * * * * * The spasms had been more frequent for the last twelve hours—the mouth was closed tightly, and swallowing impossible—a change of position (on a nice soft pillow) was adopted. In four hours from this change, which was repeated from one side to the other every half hour, the head had regained, in a great measure, its shape—that night the child was able, although with difficulty, to take some sustenance—by morning the spasms had almost entirely ceased, and in eighteen hours the babe was at the mother's breast. It is now perfectly well."

Mr. Duncan is not a medical man, but the facts of this case are not the less forcible.

Case III.—Mr. Jas. S. Winters' child (male) was born on Saturday, 21st March, 1846, at 4 A. M. It was a fine hearty looking child, but seemed to be quite unwell—*refused the breast from the first*—was not able to open the jaws so as to take the nipple; was restless, sleepless and fretful all the time, making a distressing moaning, with occasionally "a peculiar sort of unpleasant breathing." What little nourishment it was forced to take seemed to sicken it. The grandmother, feeling great uneasiness about the child, held it on her lap most of the day and nearly all night. Its moanings and restlessness, which she attributed to the colic, caused her to give it repeated doses of paragoric and catnip tea, but with no benefit. It appeared to be in a great deal of pain, and throughout Sunday she noticed that it had occasionally a little *spasmodic quivering* or jerking of the *right* arm and leg, but not of the *left*. The movements or spasms of the arm and leg were, as well as she could determine, synchronous.

On Sunday evening, I saw the child. It was then thirty-six hours old. Had for several hours refused to swallow anything. The grandmother had it lying across her lap on its back, with the occiput lying on her left knee. After hearing a description of the symptoms, as above related, I examined the occiput, and found the *right* edge of it pushed under the corresponding part of the parietal bone, while the *left* was riding *over* its parietal neighbour. [I wish this fact to be remembered, for, in connection with others to be related, it assists very materially in pointing out the rationale of the diseased action.] The grandmother remembered that the child had never been laid on its side. Of course, I lost no time in placing it *properly* on its side on a pillow. In two hours it was perfectly free from all pain, distress, moaning and jerking, and it rested finely all night. On the next morning (Monday), it was able to suck freely for the first time, and the right edge of the occiput, like that of the left, was occupying its proper relative position, *exterior* to the parietal.

This child was born *trismal.* Its restlessness, sleeplessness, moanings, stridulous breathing, spasmodic choreal, jerkings of the arm and leg, its locked jaws and *inability to suck* (although there was no tonic rigidity), all go to establish it as a case of trismus: and there was an *inward* displacement of a portion of the occiput. Now all these symptoms were instantly arrested simply by rectifying the occipital displacement, and, that, too, without giving one drop of medicine.

Case IV.—Wyatt Peters' child, female, born on Monday, 23d of March, 1846. Nothing unusual in the labour, which was the second. From the very hour of its birth, it seemed to be affected with *cold*, as manifested by a "hoarseness," "wheezing," or "rattling in the throat," which has always been worse during sleep, and worse at night than in the day. The mother says that over and over again they have made it suck a "piece of *fat raw bacon* to clear the *phlegm* out of its throat," but to no purpose. With this exception, the child did pretty well for the first nine or ten days, when the mother was waked up about one o'clock in the morning, by its hard breathing, and then for the first time *it refused to suck*, or, rather, it *could not open its mouth* wide enough to take the nipple. Every attempt at nursing would excite a spasmodic closure of the lips, thus preventing the introduction of the nipple. There was also great restlessness, with moaning and slight spasms, but no tonic rigidity. These paroxysms would come on every night near about the same hour, with more or less violence, and last usually three or four hours. I saw the child on the nineteenth day, for the first time. Its crying, which was attended with a spasmodic, croupy sort of cough, had always been peculiarly weak, hoarse and stifled. It had occasionally a sudden involuntary jerking of the hands towards the head (as if it were *frightened*), accompanied with a *tight puckering* of the mouth. Jaws could not be opened. It *could not suck* at all. [This inability to suck is pathognomonic of the disease.] The mother made many fruitless efforts to force the nipple into the child's mouth, exciting invariably a spasmodic closure of the lips. A little tea seemed to strangle it; indeed, *it could not swallow*, but with the greatest difficulty. Its breathing was hurried, stridulous. [What the mother called "stuffed or choked up with cold," "wheezing," "rattling in the throat," "hoarseness," I find to be a stridulous inspiration. Until I saw this case, I was not aware of what was to be understood by the graphic language used by mothers to designate this symptom; for instance, in my former paper on this subject, I quote the words of one mother where she says that her child "made a little wheezing noise like a kitten." Another, "like it was choking to death;" and a third, where it made a noise "more like something a dying," all evidently meaning what we understand by the term laryngismus.]

When I entered the room, the mother was holding the child in her arms. It was *lying on its back*, the occiput resting exactly on her left arm. On inquiry, I found that it slept on a pile of pillows in a rocking chair during the day, and in the bed with the mother at night. Without asking any more questions, I was determined to see in what position the child was kept, so I requested the mother to place it in the chair, as she was in the habit of doing during the day. She did so, and *laid it on its back.* I now directed her to take it up and put it to bed, just as she would do if she were going to rest for the night. She did so, and placed it *exactly on its back again.* She had always kept the child lying on its back, was afraid to turn it on the side, "for fear it might turn clear over on its face, and get smothered."

The edges of the occiput were overlapped by those of the parietal bones, not to so great a degree as I have seen, but to a very remarkable extent: so much so that the parents could easily perceive it when it was pointed out and explained. I had the child placed *properly* on its side on a pillow, not giving any medicine. In twenty minutes (by the watch), the stridulous inspiration was gone; and in thirty minutes, there was no moaning or other signs of uneasiness. I left the little patient at 10 o'clock, feeling pretty well satisfied that it would recover without any more trouble; but about midnight, (as usual,) it screamed out suddenly some three or four times in rapid succession, throwing the hands up, and clinching them so tightly, that they could not be opened ; at the same time that the head was jerked back, eyes rolled in every direction, the lids being kept widely open, jaw "fallen," feet and legs stretched out, body thrown backwards, and all attended with a sort of *quivering* motion thrilling the whole frame. These spells of clonic spasm (thus described almost in the mother's own language), would come on every two or three minutes, the paroxysms getting shorter, and the intervals longer, till they gradually disappeared about 3 o'clock in the morning. During this period, the mother felt so uneasy about the child, that she took it up two or three times on its pillow, but finding every time she touched or moved it, that the "spells" got worse, and would come on oftener, she was constrained to let it lie still. About 4 o'clock, it sucked a little, but very feebly, and fell asleep. At 6 o'clock, it waked up, and sucked very well, indeed, better than it had ever done before. From this time on, it was regularly convalescent, although the occiput did not gain its proper position *exterior* to the parietal bones for about 36 hours, during which time the child was kept carefully on one side or the other. After this, it was laid upon the back without disturbing the relative position of these bones, and without reproducing the slightest symptom of the disease.

Case V.—This is one of the most remarkable cases that I have ever known. On Thursday, 2d of April, 1846, my friend Dr. Vickers was sent for to see a negro child at Robert T. Ashurst's, which had been sick more or less all its life. It was then *between four and five months old.* The doctor related the case to me, and I transcribed it nearly in his own words. I shall use the notes made at the time. He says: "It was a pale, puny, sickly looking, emaciated child ; had frequent, involuntary, greenish mucous, griping passages. It was lying on its back in a deep, narrow cradle. Had a constant rotary movement of the head on the pillow as it lay on its back, exactly like what we see in hydrocephalic cases. It seemed to be clawing at its mouth with the *right* hand ; yet the hand was directed to no particular spot. By watching it awhile, I soon discovered that the motions of the right hand were involuntary, that it moved in a regular gyration from the mouth across the breast, down by the side, being now thrown outwards and brought round again towards the mouth, and so on; each gyration occupying a definite, almost unvarying period of time. In addition to this movement of the *right hand,* I observed a similar one of the *right leg,* which was altogether synchronous with that of the upper extremity. This consentaneous action in the right side naturally led me to notice the left, and I immediately saw that it was passive, indeed, perfectly paralyzed. I raised up the *left hand;* let it go, and it fell lifeless by the side. I now raised up the *left leg,* and let it go. It, too, fell, like a stick, powerless and motionless, and obeying most perfectly the laws of gravitation. Its eyelids were half open, eyes glazed and turned up, pulse almost imperceptible, stringy ; one pulsation running so closely into another, as to make it impossible to count them. Its breathing was panting, and very frequent. I really thought the child moribund.

"It was lying on its back on a cradle, which was too short to allow it to lie its full length, and so narrow and deep, as to preclude the possibility of its turning on its side, even if it had had the physical power to do so. Its bedding was composed of blankets, and it had an old pillow of chicken feathers under its head. The back of the head, and for half an inch around the lambdoidal edges of the parietal bones, was as clear of hair 'as the palm of my hand,' so smoothly had it been worn off by the constant rotary motion of the head. *The occipital bone was shoved in* on the brain to an almost incredible extent. It was pushed so far under the level of the edges of the parietal bones, as to have the appearance of a segment of a sphere sawed off and placed on the inside.

"I immediately determined to see whether all this train of symptoms (though I feared it was too late), was not the result, solely, of *the dorsal decubitus, and occipital displacement;* so I took the child up and placed it on its side in a bed, without giving it any medicine at all. In one hour, the spasmodic action of the *right* arm and leg began to subside; and just in proportion as the *chorea* of the *right* side was relieved, so was the *paralysis* of the *left.* In two hours its pulse was full, strong, easily counted, and only 120 per minute. Its breathing was entirely relieved. After keeping the child about four hours on alternate sides, (seeing that it was now out of all danger,) I thought I would try the experiment of placing it again on its back in its *little pillory*, the cradle; and, in less than five minutes, all the symptoms were reproduced, *the chorea, paralysis, &c.* Turning it upon the side soon put a stop to them. This experiment was repeated frequently with the same results.

"It now occurred to me to try some experiments, with the view of observing the symptoms of (properly speaking) a *trismal* character. The mother said, that there had always been great difficulty in getting the child to suck; that sometimes it could not draw the breast at all; and very often would stop before it got half through; and that this had been the case from the time it was a week old. I requested her to suckle it; (it was now quiet; had been for some time lying on its side.) She took it up from the bed, and applied it to the right breast. In doing this, the occiput fell precisely against her arm, as it supported the head; there was a difficulty in the child's laying hold of the nipple, and she attempted to force it into the mouth by pressing this firmly up against the breast. This plainly increased the difficulty, for the pressure of the child up to the breast, by the arm supporting its head, and acting upon the occiput behind, evidently produced a deeper displacement of this bone, and so every effort on the part of the mother, while she thus held the child, only aggravated the trouble. Seeing that there was no chance for it to suck in this way, I requested the mother to take her arm from under its head, while I would support it in my hands. I now held its head between my hands, gently and firmly compressing the parietal protuberances for five or six minutes, but with no pressure on the occiput; and it sucked with the greatest ease; indeed, most ravenously. I then changed the pressure from the parietal to the occipital bone, and instantly the same difficulties occurred, as when the head was resting on the mother's arm; and thus I occupied myself for nearly half an hour in alternately producing and relieving the symptoms of *lock jaw;* in the first instance by *displacing* the occiput, and in the next, by *replacing* it.

"I did not intend giving the child any medicine, but Mrs. A. insisted on its having 'a good big dose of calomel.' Knowing that she would not be satisfied if I did not prescribe something more than mere change of position for so grave a case, I poured out a few grains of prepared chalk, and requested her to give *the calomel* at night, and to be particular to keep it on one side or the other, all the time. The child had taken any quantity of chalk mixtures before, without producing the slightest good result: so I concluded that I might venture on this as a placebo, without any danger of dividing the honors with change of position.

"Next day, I visited my little patient, and Mrs. A. met me at the door, in perfect ecstasies with the results of the *quasi* dose of calomel—said she had never seen calomel exert such miraculous effects in so short a space of time; that the child had had two good bilious evacuations for the first time in its life; that it sucked well, (I had directed the mother how to nurse it without pressing in the occiput,) and looked better than any one could have hoped. Its passages (as before remarked) had *always* been greenish mucus without fetor, but I now found them natural in appearance, and *fetid* enough. In three days, I discharged the case as cured, not having given any physic save the few grains of prepared chalk."

I visited Dr. Vickers' patient with him, on the 13th April, eleven days after he first saw it. I found the child quite lively, and fattening very fast. It had a *pale, ashy* look; indeed, it was as pale as a mulatto, but is evidently free from any taint of that sort, for its parents are quite black. The occipital region was perfectly clear of hair. The occiput was not pushed under, as at first, but still its edges were within those of the parietal bones. It was movable by pressure. While examining this bone, it occurred to me to try the experiment of pushing it in on the brain; so I placed my two thumbs on the *pars occipitalis*, grasping the lateral and anterior parts of the skull with the hands, and thus, by the use of considerable force, I displaced it suddenly. What was my surprise to see, in an instant, the immediate reproduction of the involuntary gyrations of the *right* arm and leg, with a motionless state of the opposite side. This experiment was often repeated, with precisely the same results. Each time, as the pressure was removed, the symptoms ceased, the bone resuming its position with the cessation of the pressure. By these experiments, I also had the satisfaction of fully verifying Dr. Vickers' observations on the *trismal* symptoms in connection with the displaced occiput.

On inquiry, the mother informed me that the child had never been well since it was born; that it never had a natural or healthy-looking passage from the bowels, till Dr. Vickers was called to see it; that it did tolerably well till it was about a week old, when it became fretful, refused to suck, made "a curious noise in its throat" (stridulous inspiration); that sometimes it would suck pretty well, and then, again, it could not; that it had a perpetual bowel complaint, and for the last two or three months, had passed thousands of little, fine thready-looking worms.

It may be thought that I am occupying too much time with a single case, but it is so important in its bearings on the etiology of the disease, that I must be pardoned for adding a few words more.

It might be said, "If the occiput was so much displaced, and the child lived *five* months, how is it that they die very suddenly, and that often, when the occiput is so slightly displaced as to be scarcely discoverable?" Let us examine the facts of the case for an explanation. The child was kept all the time in a cradle, without a nurse. The cradle was too short to allow it to lie flat down, so it was kept in a semi-erect position, with its head supported by a large (not very soft) old pillow of chicken-feathers, all *matted* together—the cradle was too deep and narrow to allow it to turn on its side, even if it had been strong enough to do so—the unvarying "dorsal decubitus" kept the occiput displaced; the semi-erect position threw the weight of the head on that point of the occiput between the occipital protuberance and the posterior fontanelle; this necessarily tilted the mesocephalon forwards against the cuneiform process of the occipital bone, and pressure exerted on the pons* always produces chorea or paralysis, or both, in exact proportion to the amount and degree of pressure. The semi-erect position was altogether favourable to the prolongation of the disease (and of life), because, in a perfectly supine position, the weight of the head would have rested lower down on the occiput, which would have displaced the bone, so as to press more on the medulla oblongata and the eighth pair of nerves, and thus the patient would, in all probability, have died, at a very early period, of asphyxia. Moreover, the semi-erect position favoured the return of the blood from the spinal veins into the general circulation, through their anastomoses with the cervical, azygos, dorsal, lumbar and sacral, thereby preventing the congestion and, perhaps, extravasation, which may result from the purely supine position.

I will admit that the case above related has not a parallel, so far as I know, but it must not be supposed that chronic cases of trismus are uncommon. Most of our writers on the subject describe the two varieties of acute and chronic; thus Coley says (page 393)—"The chronic variety commences with dysentery, and is attended with a cold exsanguious state of the skin, whence it has been popularly denominated the 'white locked-jaw.' This form of the disease is tedious, and attended, as when dysentery is uncomplicated, with rapid emaciation, which renders ordinary treatment insufficient, and terminates in death."

Case VI.—This case furnishes another example of the disease in a chronic form, and is related to me by Dr. G. A. Tompkins, of Pike Co., Ala., who writes thus:—

"Some time ago, when casually passing a house in this neighbourhood, I was stopped, and asked my opinion in regard to the disease of a white child, as it was thought to be an uncommon case. My attention was called to an extensive phlegmonous erysipelatous inflammation of one arm, and the opposite thigh. On examining the child more closely, I discovered the muscles of the extremities to be rigid, and that there was considerable opisthotonos, which circumstances, together with the unavoidable position on the back, induced me (from having a short time previously heard of your views of trismus nascentium), to make an examination of the occiput, which I discovered to be *very much depressed, and considerably overlapped by the parietal bones.* I was not called in to take charge of the case, but I directed them to lay it on its side, if possible. I afterwards learned that they tried to do so, but the tenderness of the hip prevented it from lying on one side, and that of the shoulder from the other; so it was allowed to continue on its back. It died five days afterwards. On making inquiries since, I learn that it was *unable to suck* when I saw it, that its dejections were of a *dark-green dysenteric* character, and, likewise, that it occasionally had *spasms.* It differed from the cases of trismus reported in your paper, (which I have since seen,) in the age of the patient, as this child was about *five months old*, though it was badly-grown, and very much emaciated.

"*November* 13*th*, 1846."

The six cases now related are all of one character—all plain and simple —all had the occiput *shoved in* to such an extent that it was easily detected by a very superficial examination, and all had been kept upon the back, and *flatly so.*

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* See an interesting paper on the "Source of Convulsions," by T. Wilkinson King, Esq. Med. Times, Oct. 1844.

I now pass on to a class of cases, where it is not so easy to detect the occipital displacement, and where, of course, there will be less of the "dorsal decubitus;" but in which the true relative position of the bones may be readily detected, when the method of doing so is once understood.

This is the class of cases which formed the basis of two excellent papers on this subject, by my friends, Dr. Baldwin,* of Montgomery, and Dr. Gaillard,† of Charleston. Each advocates the old notion of the traumatic umbilical origin of the disease; one contending that the "spinal hemorrhage" is a sequence of the spasms; the other, that "it is not necessary to the disease." With the first, I shall agree that a child dying of trismus, really dies *asphyxiated;* and with the latter, that "the effusion of blood into the spinal canal," is not an essential and unvarying feature of the disease.—Their theoretical views I shall not touch; but I may be pardoned for examining a little into the facts adduced. Dr. Baldwin kindly invited me to see his case, both during its progress, and at the autopsy, and as it forms the basis of some practical remarks on the disease, I shall take the liberty of borrowing it from his published account.

Case VII.—Dr. Baldwin says (*loc. cit.*, p. 363)—"At midnight, the child became very fretful, and refused to nurse, and occasionally was noticed to 'jerk,' as if it had spasms, and continued in this situation through the night. Has passed the meconium, and its last operation was yellow.

"11 *o'clock A. M.* The mother is lying on a *soft feather bed*, and in every way comfortably situated. When questioned relative to what position she had kept the child in since its birth, she stated that it was *her* habit to lie on her *side*, and that she kept the child *on its side, facing her*, changing its position as she changed her own from side to side, but never on its back. * * * * * * *

"Among other prescriptions left for the child, I directed that it should not be allowed to lie on its back, and that its position should be changed often, from side to side, on a soft pillow. As regards the position of the bones of the head, they seemed to me to be about as regular and well-formed as in infants generally of its age. Dr. Sims thinks the lateral edges of the occipital bone are 'slightly' overlapped by the parietal. * * * * Dr. Boling, after carefully examining the bones of the head, remarked, that if their position was remarkable for anything, it was for their very great regularity and uniformity."

As I said at the commencement of this paper, I have found out that a child may have the occiput "slightly" displaced, without ever having been kept square upon its back, or even on a hard substance. And that this *slight* displacement is all sufficient to produce the disease in its most aggravated form. When my first paper was published, I was not aware of this fact, and it was fortunate for the discovery, that the first cases that occurred to me, had the occiput so plainly, and so much displaced, that it was almost impossible for the mind to view the disease in any other light than as arising from the pressure exerted by the displaced occiput; and particularly, where the disease existed in all its force, and where all the symptoms were relieved, just in proportion as that displacement was rectified.

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* Amer. Journ. Med. Sci., Oct. 1846, p. 353.

† South. Journ. Med. and Pharm., Sept. 1846.

Once thoroughly imbued with this idea, it was a very easy matter to detect "slight" variations, or degrees, of occipital displacement; and it was certainly not difficult to infer that a "slight" occipital displacement was sufficient to produce the disease; particularly, when I found that every symptom yielded to its correction.

No one would ever have supposed, *à priori*, that so "slight" a displacement as that noticed in Dr. Baldwin's case, could have produced the disease; and if I had not since seen several similar cases remedied, I should not have felt warranted in claiming it as one arising from "occipital displacement."

Dr. Baldwin does me ample justice in saying that "Dr. Sims thinks the lateral edges of the occipital bone are 'slightly' overlapped by the parietal." He quotes me literally, and reports it honestly.

As there was a difference of opinion between us in regard to the relative position of the occipital and parietal bones, and as other writers have reported cases in which "the occiput was not shoved under," I feel warranted in devoting a few words to the proper method of determining this point.

In every case of labour, the occiput of the fœtus is displaced inwards, with its lateral edges under the parietal bones. There is hardly an exception to this rule. Moreau first observed it, and any man can easily satisfy himself of the fact.

In two instances, I have seen the edge of the occiput along one arm of the lambdoidal suture, underneath the parietal, while the opposite one was above it. This is the only variation of the general rule that has fallen under my observation. That the occiput is displaced then, in *every instance*, at birth, is a *truism*, and needs no illustration; but that it may remain so for any length of time afterwards, requires some proof.

Now, suppose I am called to a child, one, two, or even three or four weeks old, with symptoms of trismus. We will suppose, too, that it is a fine large child, hearty and plump in appearance, with the bones of the head well ossified. The mother says that she "always lays her babies on their sides." I wish to find out whether there is any occipital displacement. I run my hand around its head, applying the palm to the occiput, (as nine out of ten would do,) and feel no displacement. This is the character of one half the cases that occur, and this is the way in which they are investigated. But now let me go to work to find out exactly the relative position of the bones. And here, let me say, that one of two things must *invariably* exist: *either the occiput will be under the parietal, or the parietal will be under the occipital*, according to the position in which the child has generally been retained. There is no such thing as the edges of these bones being in apposition or parallel with the commissures on the stretch. I have examined the heads of several hundred infants, since my mind has been turned to the investigation of this subject, and I have seen but very few during the first week, and none after the second, in which the edges of these bones were parallel, and the commissure on the stretch. This occurs only where the ossification is very deficient, is easily detected, and of course forms an exception to the general rule. Whoever, then, reports a case of trismus, saying that there was "little or no displacement of the occiput," or that "it was not more so than usual with children of that age," draws the conclusion from a superficial and careless examination, and the report of the principal fact is too indefinite to be of any value. He must examine it critically, and say *positively*, either that the edges of the occiput were *under* the parietal bones, or *exterior* to them. And now for the method of finding this out. If it is not ascertained almost by the sight alone; or if it is not immediately discovered by the usual careless way of running the broad surface of the hand around the head, (and this will not be done unless in cases where the child has been confined to an almost unvarying dorsal decubitus,) then I go to work in this way.—I press the forefinger pretty firmly against the occiput, about half an inch from the lambdoidal suture, and at a point about half way between the posterior fontanelle and the mastoid process—I now pass the finger slowly and cautiously *across* the suture; at every step making firm pressure. When the finger arrives at the suture, or, more properly speaking, the commissure, if the occiput is under the parietal bone, it will be found to yield, and the finger coming in contact with the edge of the parietal, will have to be elevated a little so as to pass over on to its free border: but if the occiput is on the outside of the parietal, then the finger meets with no obstruction; on the contrary, it glides smoothly over, and falls on to the parietal. The proof of this will be found in a retrograde manœuvre. Now place the finger in like manner on the other side of the lambdoidal suture, and pass it, as before directed, *across* the suture. If the occiput should be on the *inside* of the parietal, then will the finger pass over unobstructed, merely having to drop a little to come in contact with the occiput; but if it should be on the *outside*, then will the finger encounter its salient edge, and have to be elevated a little to get over it. By following this simple plan, there is no chance of making a mistake, or of even speaking indecisively on the subject. I wish to be fully understood in this matter, for upon the nice discrimination of "slight" displacements of this bone, will depend the lives of generations yet unborn.

Now, this is the plan I pursued in the investigation of the case above referred to, and it was the only method by which the true relative position of the bones could possibly have been detected.

But it may be said, "What if the bone was a little under the parietal, so little that two out of three could not detect it? Is it possible that it is sufficient to produce trismus?" I answer emphatically, yes!

During parturition, the proper place for the occiput is *underneath* the parietal; but in extra-uterine life, its proper and only safe position will be found to be in the *outside* of this bone. Usually the occiput gets right, *i. e. exterior* to the parietal (when a proper position is observed), in from twelve to forty-eight hours or more; generally it takes about thirty-six hours. Once get the occiput right, get it *outside* of the parietal, and it *never* goes back. You may then lay a child on its back with the most perfect impunity; indeed, I should as soon think of breaking in a stone arch with a blow from a reed, as to displace the occiput under these circumstances by merely a dorsal decubitus.

But as these precepts are better enforced by practical illustrations, I shall proceed with my cases.

CASE VIII.—Mrs. Gregory's child, female, born on the 7th September, 1846. I was called to see it on 1st Oct. at 8 P. M. It was then a few days over three weeks old.—Here I copy from my notes made during the visit.—The child has been perfectly hearty ever since its birth up to yesterday, when it seemed to be "stretchy and gaping," was restless, fretful, and made a distressing moaning noise; slept some last night, but not much; was constantly "twisting and screwing," and writhing about mechanically as if in great distress; mouth generally open, sometimes smacking the lips, and all the time lolling out the tongue. *Has not sucked* since it was taken yesterday (thirty-four hours); tried twice, but did not succeed. As the jaw is "fallen," it is easy to put the nipple into the mouth, but *from want of suction power, it cannot draw the breast at all;* seems to mumble it. The breast being full, some little milk was discharged into its mouth, which was swallowed. It appears to be *tired, worried;* grunts and moans perpetually. Breathing on the *panting* order. I requested the mother to lay it in the cradle, (where she usually kept it;) she did so, laying it *rather* on the back. This evidently aggravated all its symptoms. After watching its actions for eight or ten minutes, I had it taken up and applied to the breast again, but it *could not suck.* It champs the nipple a time or two, looks fatigued, rests, and lets go entirely. It gapes, pants, moans, grunts, writhes about, lolls out the tongue, and then pukes by a sort of regurgitating process; but this affords not the slightest relief. I had it applied to the breast again, but *not a drop of milk was drawn.* Its bowels are somewhat disordered.

When I entered the room, the mother had the child in her lap, lying on its back, the occiput supported by her arm, the head rather hanging over it; thus making the greater degree of pressure low down towards the foramen magnum. I inquired if she had kept the child on its back or sides mostly. "Oh! Doctor," says she, "I always keep my babies on the side,—never lay them on the back." While these words were being uttered, she held the child as above described. I now requested her to put the child to bed, and show me how she laid it; she put it in the cradle, and laid it, *not* upon the *back*, true, nor upon the side, but diagonally between the two.

It was a fine, large, plump-looking child; had the roundest, smoothest, prettiest head I ever saw. I ran my hand around the head to discover the relative position of the occiput and parietals; but I did not even discover the lambdoidal suture, much less any irregularity in the bones. This would have satisfied almost any observer. He would have said, "Well, the mother *says* she has kept the child on its side, and I can find no displacement of the occiput; therefore, this case is opposed to the theory of occipital displacement." This logic did not satisfy me, because I *knew* that the edges of the occiput must be either *within* those of the ossa parietalia, or *exterior* to them; and I *knew*, moreover, that, if the latter was the case, the child's position had been managed correctly: but if the former, that it had never been lain on its side *properly*, at least for any length of time.

By applying what I call the *test method*, (described on page 68,) I soon discovered that the edges of the parietals were *exterior* to those of the occipital bone; that the latter was movable by pressure from behind; and that the left edge of the occiput was a *little* more displaced than the opposite one, which was shown by the greater prominence of the edge of the left parietal. By pressing forcibly on the central part of the "pars occipitalis," with both of my thumbs, it was easily depressed, and all the child's *distresses* and mechanical manœuvres were instantly aggravated, producing, however, no convulsive movements; but a spasmodic *quivering* of the *left* hand appeared, just as the pressure was removed from the occiput.

Well, the mother had laid it in the cradle, upon what mothers usually term *the side*, i. e., neither on the back nor on the side, but with the face looking in the direction of a line drawn diagonally between "a perpendicular and horizontal." I now tried what I call laying a child on the side. I "*batted*" a pillow up with more feathers at one end than the other, thus making a soft "inclined plane." The child was laid lengthwise the pillow, on its side properly, with its face looking directly to the horizon, so that the weight of the head would be sustained on the surface embraced between the parietal protuberance and the outer edge of the orbit. As soon as the child was placed in this position, the mother exclaims, "Why, doctor, I have, as I told you, always laid the child on its side, but nothing like *so much so* as that."

In a very few minutes, perhaps not more than five, the child showed manifest symptoms of improvement. It soon got perfectly quiet; the moaning, "*screwing and twisting*," all ceased; the breathing became calm, regular, and free, without any *panting;* and it slept easily and sweetly. After awhile it waked; would occasionally let the lower jaw "fall," protrude the tongue gently and smack the mouth, like it was tasting something good; would occasionally open its eyes and look around, but without any motion whatever; indeed, it was wholly relieved, and that in the short space of 30 minutes. I left it for the night at 9 o'clock, with the injunction to keep it on its side *properly*, not having ordered any medicine. It took the breast at 11 o'clock, (after having lain on the side for two hours and a half,) and sucked well, drew it strongly, went to sleep immediately afterwards, and rested finely all night.

On the next day, (Oct. 2d, 7 A. M.,) the child was well, but the occiput was *not yet exterior* to the parietal bones; persevere with position.

7 P. M.—Occiput not quite right yet; child quiet all day; sucked well; no moanings, stretchings, gapings, or distress of any sort; bowels have not been disturbed since the change of position last night.

Oct. 3*d*, 8 A. M.—The occiput is now right; is plainly *exterior* to the parietals, but can only be detected by the peculiar method already described. I directed the mother to keep the child on its sides a day or two longer, and then to lay it in any position she pleased.

Now, there are some, (particularly those who have preconceived *opinions* to uphold,) who may doubt that this was a case of trismus. What was it, then? Heretofore we seem to have been carried away by a name, or by *notions*. For instance—one will say, "I saw a case very much like trismus, the other day, in a child a week old; *it could not suck*, but then its jaws *were not locked*, for I could force them open by putting my finger between them." He, led off by a *name*, had fixed in his mind the *locking* of the jaws as the characteristic feature of the disease, when all the world knows that, in trismus *nascentium*, the jaw is just as apt to be "fallen" as "locked." Another will relate a case, occurring, perhaps, on the third day, giving every essential symptom of the disease, and then say, "but there were no tonic spasms; nothing, in short, characteristic of tetanus." He, too, had assumed one of the unvarying features of traumatic tetanus as pathognomonic of this disease.

Here let me say, that there is one symptom of trismus nascentium, which is uniform, makes its appearance early, and (in conjunction with others) is a certain diagnostic; and that is, *the difficulty of sucking*. The child may have no tonic rigidity; clonic spasms may be wanting; it may even swallow with some degree of freedom; its jaws may not be locked; it may possibly sleep well, (perhaps too well;) its bowels may be in proper condition; but if it goes long *without sucking*, if it *cannot draw the breast*, and if this cannot be accounted for by some competent physical cause, such as hare-lip, cleft palate, sore mouth, &c., then, I say, it has trismus. Let it then be remembered, that this *inability* to exercise the *suction power* constitutes the chief and almost the only unvarying early symptom of the disease. *It is pathognomonic, because unvarying;* but it never exists alone; it is always attended by other symptoms, which ought to arouse suspicion at once; such as moaning, sleeplessness or drowsiness, stridulous breathing, borborygmi, diarrhœa, dysentery, whining, fretting, writhing, &c., all evidently manifesting some general derangement of the whole machinery. So well understood is this amongst the negroes, who have lost children with this disease, that they recognize it at once; they look for this *difficulty* of *sucking* with the greatest solicitude, and when it occurs, they give up the child as irretrievably lost. They, with their unfortunately practical experience, will recognize the disease long before a physician, who is unaccustomed to it, will begin to suspect its true character. Indeed, physicians generally do not recognize it till it has advanced to the last or fatal stage. I well remember treating a case (ten years ago), when I thought the child was labouring under colic; it did not occur to me that it *could not* suck; I only thought that it *would not*, because it was in too much pain. My eyes were not open to its real danger, till the supervention of spasms, which soon carried it off.

It would be fortunate, then, if we had some unfailing sign of this dreaded malady, so that we might recognize it at once, and apply the appropriate treatment. The *inability to suck*, I have pointed out as that sign.

I will now go on to the consideration of a class of cases, which I shall denominate *trismoid*, for the simple reason, that they are wanting in some particular points which serve to characterize *pure* trismus, and yet present a chain of phenomena belonging to this disease, evidently produced by the same mechanical agency, and relieved in the same speedy manner. More properly speaking, they constitute the initiatory stage of trismus, lasting, however, for a long time without developing it fully.

Mrs. S——'s child, male, aged three weeks, when about eight days old, was noticed to be colicky; has been so ever since, with a constant gurgling of wind in the bowels; for two days past has not sucked so well nor so strong as usual; has a snuffling and wheezing in the throat, like it had taken cold; has not slept so well for a week past as it ought. It is a very stout child; head large; bones well ossified; occiput *apparently* all right; but a proper examination shows it to be "slightly" overlapped by the parietal bones; child lies in a crib on a nice soft bed. The mother says she lays it on the side. I requested her to show me how she laid it on the side. She seemed quite astonished at my insisting on such a simple matter, as if there could possibly arise a question on that point. However, she put it in the crib, and laid it (as all mothers do, who say that they are in the habit of laying their children on the side, *i. e.*) diagonally on the side. I now showed her how to lay it properly on its side; no medicine was given. The child rested well that night, better than it had for two weeks. The colic, gurgling of wind, wheezing, and "slight" difficulty of sucking all disappeared directly, and in thirty-six hours the occiput was occupying its proper position—exterior to the parietals. The change in the relative position of the bones, could only be detected by the proper method of examining it.

Mrs. A——'s child, male, six weeks old, had diarrhœa and colic; rested badly at night, and fretted very much during the day; was rather a puny looking child; had never appeared to thrive; occiput under the parietals. I had directed the mother how to lay the child, when it was but a few days old, but my advice had not been followed, and, therefore, the occiput could not get out of its prison bounds. I gave no medicine, but simply placed the child properly on its side, enjoining the necessity of keeping it so till I should order otherwise. In less than twenty-four hours, it was wholly relieved, and in forty-eight hours, the occiput occupied its only safe position on the outside of the parietals. It had no return of the symptoms, and began to fatten from that time.

Mr. N——'s child, male, nearly four weeks old, appeared to be doing well for the first eight or nine days, except that it drew the breast feebly; sucks well now, (March 13th, 1847.) It makes a constant moaning, distressing noise, day and night, but only when it is lying down; has occasionally a panting respiration; opening the mouth and protruding the tongue, like it was trying to get a hair or some foreign substance out of the mouth; twisting round the head and writhing about, as if in pain. All this was supposed to depend upon the colic, and the father thought that he had *prima facie* evidence of it, from the fact that he could temporarily suspend the symptoms by laying the child on its belly, across his lap; but they invariably returned when he would lay it down. Slamming a door, opening a window shutter, or any sudden noise, (even when slight,) easily wakes it up in a fright. It has a bowel complaint, which has persisted despite of every remedy, having appeared with the other symptoms about the ninth day. The attending physician has been giving chalk mixtures, carminatives, &c., without the slightest good effect. It had no tonic rigidity; no clonic spasms; no locking of the jaws; no stoppage of the suction power, and was not, therefore, a case of trismus; but the age of the patient, and the symptoms, clearly indicated its *trismoidal* character.

The bones of the head were remarkably well ossified. The child had never lain properly on its side, though it had never been kept flat on the back. Occiput "slightly" under the parietal bones, more so on the left than the right side, particularly down towards the mastoid fontanelle, discoverable only by the correct method of examination. I gave no medicine, but placed the child properly on its side, with orders to persevere till it should be relieved. In less than a day, the diarrhœa and all its distresses disappeared; and on the third day, the occiput was found to be exterior to the edges of the parietal bones, which, to the practised touch, could be easily discriminated. There was no return of any symptom of the disease afterwards.

Mr. May's child, male, is now just nine days old, (Jan. 30th, 1847.) Has been perfectly well till last night. About midnight it was observed to groan, and make a very distressing noise, which has been kept up with little intermission during this whole day. Can suck, but seems to be restless and uneasy, constantly opening the mouth, and protruding the tongue. Has kept the eyes closed all day, even when not asleep; has borborygmi, with looseness of the bowels, and manifests, in its actions and general appearance, so many of the symptoms of trismus, that the father felt satisfied that he would lose the child, as he had lost one before of this disease. The mother had it in her lap, lying on its back. The father said, that, having heard of the danger of a dorsal decubitus in producing this dreadful malady, they had been particular to keep the child on its sides, for the express purpose of preventing the disease. It lay usually in a cradle, day and night, with a pillow *cross-wise* under its head, which thus formed a concavity fitting the head exactly, and thereby preventing a *proper* lateral decubitus. The head was large, round and smooth, well-ossified—fontanelles very small. Occipital region felt smooth and regular, but by the application of the method so often alluded to, it was easy to detect a *slight* inward displacement of the edges of the occiput, thus proving that the child had *never* been laid, for any length of time, on its side, the word of the parents "to the contrary, notwithstanding."

While examining the occiput, (the child being very quiet,) I pushed it in forcibly on the brain—the consequence was, that the displacement was now perceptible to the eye; whereas, before it could only be recognized by the touch. This pressing-in of the bone caused increased uneasiness to the child, as manifested by borborygmi, discharge of feces, a writhing about, opening the mouth, protrusion of the tongue, and a general restlessness. Before this disturbance of the bone, the child was lying perfectly quiet, and had been so for some time. Of course, I do not call this a case of trismus, because there was no permanent loss of the *suction* power, or control of the jaws; but it would, doubtless, have resulted in this, if nothing had been done. I gave no medicine, but instead of placing the pillow *crosswise* the cradle, I put it *lengthwise;* and showed the mother how to lay the child properly on the side. It was almost instantly relieved of *all* its little distresses, and never had the slightest symptom of a return of them. It slept sweetly all night, and next morning the occiput was *exterior* to the parietals. It was kept on the side for twenty-four hours longer, when the mother was allowed to lay it as she pleased.

Mr. Brewer's child, male, (born 7th Sept., 1847,) has never appeared to be well; cried and screamed all day, the day it was born. It is now between three and four weeks old, and *has never slept at all, unless when under the influence of an anodyne;* "never slept a wink yesterday;" is all the time restless; bowels in a very bad condition; passages curdled; has a dozen or more in the twenty-four hours; has a sort of straining, or bearing down, often, when the bowels are not moved; during these paroxysms of *straining*, the child turns red all over, and looks like the blood would gush out of its face. On the 9th and 10th days, it was taken with spasms, which are described as being intermittent, or clonic, and seemed to draw his head backwards. A dose of calomel had been given on the morning of the 9th, just before the access of the spasms. He has sucked well, vigorously all the time—has never vomited more than two or three times. Has been dosed constantly with paregoric and Dewees' carminative. Has taken, frequently, as much as twenty drops of paregoric, and twenty-five drops of the carminative, before quiet and sleep could be induced.

It is natural for infants to sleep almost all the time, unless when nursing; and when we find a child exhibiting the singular phenomenon of perpetual wakefulness, we must feel anxious to "know the why and the wherefore." Physicians had seen this child, and examined its head, to ascertain if there was any irregularity in the bones to account for all this derangement; but none was found. The child had been laid (as the parents say) on the side; but it had been kept in a cradle, and I affirm that it is impossible to lay a child *properly* on its side in a cradle as usually fixed.

Well, it was a fine, large child; cranial bones well ossified; head round, smooth, even and regular to the feel. No one could detect any irregularity in the relative position of the occipital and parietal bones by sight, nor even by touch, unless examined in the peculiar manner so often alluded to; and then there was no difficulty in ascertaining that the edges of the occiput were *underneath* those of the parietals. I placed the child properly on the side, on a pillow, *lengthwise* (in the cradle). At first, it was very restless, and I persevered for thirty minutes before the least effect was produced; after this, it went to sleep, slept well, and was quiet all day, for the first time in its life, without the administration of an anodyne. The bowels got in a good condition immediately after a proper position was instituted, so as to take the pressure from the occiput, and allow it to gain its normal relations. I saw the child six days afterwards, and found the occiput *exterior*, requiring, however, a nice examination to detect it.

I could relate several cases more of this *trismoid affection*, but there is such a sameness in them, that these five will suffice. They are important, inasmuch as they are of not unfrequent occurrence, and constitute a class of infantile diseases that has never been understood. They are important, too, because, unless controlled, they progress slowly, but very surely, to a fatal termination; either by general convulsions, or by marasmus and exhaustion, the consequence of a prolonged diarrhœa.

Who, in a practice of ten years, cannot call to mind some similar case, where the little victim was dosed with carminatives, or purgatives, or astringents, or baths, or all? where, perhaps, the symptoms persisted for an indefinite period, despite of everything that could be done! or, where, may be, they were relieved speedily; and as the physician supposed, at the time, by the potency of his prescriptions; when, in reality, it resulted from an *accidental proper position* after a change of diaper, or removal from a bath. Does not this *accidental* way of curing the disease fully explain the secret of Dr. Eberle's* success in the treatment of trismus, by the application of blisters to the *neck* (and to the umbilicus)? What man in his senses would lay a child on its back when there was a blister on the nape of the neck? Does it not also explain the secret of cures effected in a case related by Professor Stone, of New Orleans, before the Physico-Medical Society, in which the mother smeared the child all over with sweet oil, and it was made whole? Was it the oil that effected the cure, or was it an accidental proper position afterwards?

A gentleman of my acquaintance, who has lost nearly fifty negro children of this disease, informs me that he once relieved one by administering a whisky-bath, but that he has bathed twenty in whisky since, without producing the least effect. Was it, then, the whisky that cured the child? Or, did it get well by a mere accident?

One of my own children, now eight years old, had trismus on the ninth day. The case was fully developed. It was nursed faithfully—too well—was held in the arms all the time. At last, after a night of the most painful anxiety, the mother, exhausted and dispirited, laid the child in bed, giving up all hope of its recovery. To the astonishment of all, my child was in a few hours well. The sudden change was always a mystery to me, till the discovery was made that now engages our attention.

But I leave these circumstantial cases for the present, and pass on with such as are not susceptible of doubt. This brings me to the consideration of a class of cases, in which *position* alone cannot rectify the displaced occiput. This peculiarity, so far as I have observed it, depends upon one of two conditions: either the bones are too well ossified, and, consequently, too much impacted against each other to allow of any motion whatever; or else the occiput may be so *malshaped* as to present a physical barrier to a proper rectification of it. And here a surgical operation becomes indispensable to the safety of the child.

I shall introduce this subject by relating a case that occurred to Professor Harrison, of New Orleans.

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* Western Lancet, Oct. 1845.

Case IX.—Professor Harrison, in a critique on my first paper, (*New Orleans Med. and Surg. Journal*, July, 1846, p. 90,) says—"The writer of this notice was called, Feb. 14th, 1845, to see the child of a gentleman residing in New Orleans. It was the third day from the birth of the child, and the father informed us that the labour had been a protracted one—that the child, soon after birth, had been seized with convulsions, which had been continued, at intervals of from one to three hours, up to the moment of our visit. We were also told that the physician who had been in attendance had retired, giving up the case as hopeless. The child's bowels had been evacuated, and it was a well-formed, stout infant.

"Upon examination, we found the patient extremely drowsy, as if suffering from cerebral congestion: we found, also, the pupils considerably dilated. There were no tonic spasms. During the examination, a convulsion came on, which lasted about ten minutes, and then ceased, leaving the child tranquil, as before. The examination being resumed, we discovered the injury spoken of by our author—namely, a depression of the occipital bone under the parietals. The depression was very great, but considerably greater on the right than on the left side.

"As warm baths, and, in short, everything usually resorted to in such cases, had been employed in vain, it struck us that the child might be relieved by an operation. We called on Dr. Hunt, and requested him to see the case with us, telling him the particulars, and mentioning that, if he agreed with us, we would, with the consent of the parents, perform the operation. Dr. Hunt coincided with us in the propriety of the operation, and having obtained the parent's consent, the operation was performed. It consisted in cutting down on the right side, where the greatest depression was—cutting through the soft union between the occipital and parietal bones with a common scalpel—and reducing the dislocation as much as possible, by means of the director found in the common pocket-case—using it as a lever.

"Immediately after the operation, the child was seized with a violent convulsion; but it was the last one it ever had. Up to the present time, (June 1st, 1846,) it has enjoyed uninterrupted good health, and is as fine and stout a child of its age as any in the city.

"In justice to Dr. Sims, we must also mention, that, in consequence of the wound on the right side, the child was kept reclining on its left. According to his views, this position may have had great influence in the happy issue of the case."

The following extract is from Professor Harrison's reply (dated New Orleans, Jan. 26th, 1847), to some inquiries touching this interesting case.

"The mother's recollection appears to be very distinct and positive. The information I gain from her is as follows:—The child was attacked with convulsions about twenty-four hours after birth. They were frequent and violent. The operation was performed fifty-five hours after birth, or thereabouts. The child had *not* taken the breast *before* the convulsions came on. It was tried once or twice, and on the first trial, the first convulsion occurred. It took the breast on the *second day after* the operation. I could not obtain the precise time, but the mother thinks the day *after* the operation, it swallowed a little milk and water. [The *italics* are my own.]

"The mother corrects an error into which I had fallen with regard to the convulsions after the operation. Instead of having but one, as I asserted in the Journal, she had them frequently for six hours, when they ceased entirely."

The *inability to suck* (which continued from birth till the second day after the operation), was alone sufficient to establish this as a case of trismus; but the convulsions appeared to mask almost every other feature. The point of most interest to me, however, is the operation, which Professor Harrison so successfully executed. The operation was greatly assisted by a proper position; for the convulsions did not cease till six hours afterwards; showing, that while the right side of the occipital bone had been elevated by the operation, the left had to get out by a slower, but seldom less certain, process, viz., that of position. Although a proper position will rectify the occipital displacement in the great majority of cases, still, my facts go to establish the justness, and, occasionally, absolute necessity, for resorting to the operation of Professor Harrison.

He deserves, and, I have no doubt, will receive, the credit of being the first to propose and to perform an operation for the cure of trismus nascentium.

It will be fortunate if we should be able to point out the peculiarities of such cases as will require surgical interference, so that we may proceed at once, without jeopardizing the life of the child by waiting the results of position.

With a view to this, I will relate

Case X.—Dr. M———'s child, male, born on 10th Nov., 1846, after a labour of thirty-six hours. The doctor sent for me on the eleventh day, supposing that the child was suffering from the colic. For the first twenty-four hours, it had some difficulty about urinating. It had, for several days, a sort of belching, windy state of the bowels, attended by a writhing and constant moaning as if it had the colic—dejections small, frequent and curdled. Four days ago they were very copious, and of a yellowish-green; but for the last thirty-six hours it has been costive. It does not sleep at all—grunts and moans all the time, and occasionally screams out suddenly. Feet and hands have generally been cold. Had slight clonic spasms last night, for the first time. *Has not sucked at all* since yesterday. Has *never* sucked very heartily. Could not swallow last night. Would spit out every now and then, as it were, mechanically. The doctor did not think it had trismus—thought there was no occipital displacement.—Said the child had been kept carefully on its side to prevent the disease. Although the "gurgling in the bowels," and general colicky symptoms were conspicuous, still, it was no difficult matter to see at once the true character of the disease. An examination of the occiput soon showed that its edges were *within* those of the parietal bones. I now wanted to be satisfied about its being "kept carefully on the side, to prevent the disease;" so I requested Mrs. M. to let me see her place it on its side. She laid it in the cradle, not on the back, nor on the side, (as I have before remarked,) but with its face turned in a direction diagonally between these two positions. Now, this is the position that every child is obliged to occupy that lies in a cradle—and why so? To prevent the child from falling out during the rocking process, the cradle is, of necessity, never more than half full of bedding. It has then to lie in a hollow, apparently scooped out just to fit the occupant. And if a child were laid properly on its side in such a murderous contrivance, it would be smothered directly; because its breathing would be obstructed by the pillow, or that portion of its bedding rising up by the sides of the cradle; so that it is obliged to lie, either on the back, or in this semi-lateral position, which as effectually prevents the occiput (in well-ossified heads) from getting *exterior* to the parietals, as does pressure from the dorsal decubitus. True, it does not push the occiput any further under the parietals, for the weight of the head falls exactly on that part of the parietal embraced between its protuberance and the lambdoidal suture, which locks, as it were, the occiput up inside; whereas, when the weight of the head falls on that part between the protuberance and the edge of the orbit, (as in a *proper* lateral decubitus,) the lambdoidal edge, instead of being *shoved on to* the occiput, opens, and allows this bone to get on the outside of it. Once outside, the lateral position continued for a short time, causes a slight approximation of the lambdoidal edges of the parietal bones, which serve as points of support to the edges of the extruded occiput, forever preventing its return, and affording perfect immunity from danger during the most prolonged dorsal decubitus. But to return to the case.

It was a fine large child—head remarkably well ossified—anterior fontanelle not more than half an inch across. The occiput was very peculiar. From the protuberance up to the apex, the "pars occipitalis" appeared to be too much *curved inwards;* which evidently prevented it from getting exterior to the parietal bones. It seemed to be but slightly movable, and quite impacted, particularly towards the mastoid fontanelles. I had the child placed properly on its side.

For one hour afterwards, it seemed to complain a good deal, moaning and writhing about almost constantly; then it got apparently more easy, moaning and grunting only occasionally. It then fell asleep for an hour, but groaned every now and then. The mother said it had not rested so well, nor so long, in twenty-four hours. This induced me to hope that a perseverance with the lateral decubitus might possibly do some good; yet I explained to the Doctor that an operation would probably be necessary, before the bones could assume their normal relations; but, that I did not feel warranted in resorting to it, till we had tried a proper position for a reasonable length of time.

I left at two o'clock P. M., and at three, the child took spasms, and had them off and on for about three hours, when the Doctor applied cold water to the head, which appeared to modify in some degree the convulsive efforts, without controlling them. About ten o'clock, it got a great deal worse—tonic rigidity was extreme; clonic spasms more violent; and it died at 1 A. M., exhausted and asphyxiated.

The following notes were made at the visit next morning:

The navel had healed beautifully. The ossification of the cranial bones was more perfect than usual; the anterior fontanelle very small indeed.

The edges of the occiput are *under* the parietal bones. Generally, after death, the fœtal cranial bones are easily movable, the occiput being made to slide under, or over the edges of the parietals at will, by proper pressure with the fingers; but, in this case, there seems to be a perfect impaction; for the edges of the bones along the mastoid ends of the lambdoid suture can be made to slide (by considerable force), alternately over and under each other; while along that part of the suture from the curve of the occiput up to the posterior fontanelle, this bone remains obstinately under the parietals, despite of the strongest efforts to force it out. As before remarked, the occiput appeared to be too much *curved inwards*, which anatomical peculiarity accounts for the utter impossibility of rectifying its relative position.

I felt extremely anxious to ascertain whether this anomalous condition would present an insurmountable barrier to the rectification of the occiput, even by operation.

After long persuasion, Mrs. M. consented to let me make the attempt, provided it could be done without cutting. (For this proviso, I now feel thankful, as will be exhibited by a class of cases yet to be related.)

I ran a short, stout, narrow-bladed knife between the bones on the left side, about an inch from the posterior fontanelle, its point resting on the edge of the occiput; and making a lever of it, the edge of the parietal acting as the fulcrum, the occiput was prized out from under the parietal, and made gently to overlap it; but it instantly returned to its old position, by withdrawing the lever. I again prized it out, but it slipped back in like manner. I then prized it out, and had forcible pressure made on the edge of the parietal, so as to prevent its return, till I could in the same way prize it out along the right side; after which, the bone would remain in its proper position while the body was laid on the side; but would immediately return to its old place by laying it on the back. Thus proving, pretty clearly, that the child's life might have been saved, by a timely surgical operation.

It is very desirable to determine what cases will require surgical interference; and particularly, to determine how long we may safely wait, before we ought to resort to it. Life will occasionally depend upon the decision.

I would lay it down as a general rule, that, if the bones of the head were remarkably well ossified, if the occiput seemed to be immovably impacted under, and between the edges of the parietal bones, and then, if a *proper* lateral decubitus, persevered in for three or four hours, did not relieve or greatly ameliorate the prominent symptoms, I would feel no hesitation in resorting to Professor Harrison's operation (or a modification of it), for elevating the depressed bone.

We shall continue the consideration of this subject in a future number of this Journal.

ART. V.—*On the Causes operative in determining the Proportions of the Sexes at Birth.* By GOUVERNEUR EMERSON, M. D.

IN an article published in the American Journal of the Medical Sciences, (Nov., 1831,) we gave some results of statistical investigations into the births which had taken place in Philadelphia during the ten years embraced between 1821 and 1830. In viewing our tabular statements at that time, we were struck by the variations observed from year to year, not only in the totals, but in the proportions of the sexes. We entered into some investigations with the view of ascertaining whether influences might be detected in our locality affecting conceptions. This had been recently done in regard to Paris, by M. Villermé, and the results we arrived at were in singular accordance with his, showing that the population of Philadelphia was subjected to agencies tending to operate unfavorably upon its increase from reproduction. We regarded these as chiefly dependent upon the prevalence of extreme heat, in summer, and the insalubrity of the first months of autumn.

Whilst recently engaged in making out another series of tables showing the vital statistics of Philadelphia, for the decennial period embracing the years between 1830 and 1840, we had our attention drawn to a new fact connected with the mystery of reproduction.*

In a table exhibiting the births during the ten years, one of the columns shows the excess of males over the females for each year. In passing the eye down this column, we were surprised to find the amount for 1833, reduced to only 38, whereas, in the preceding year, it had been 415, and generally, the preponderance of male over female births amounted to several hundreds per annum, being 6.29 per cent. for the whole decennial period. The total of births during the year 1833, was greater than that of the preceding year. Supposing that some error might exist in the calculations for this year, we consulted the original records at the Health Office, and satisfied ourselves that the computations had been correctly made.

In estimating the births for the months of April and May, 1833, we found that the males amounted to 532, and the females to 590, showing a *female* excess of 58, or about 10 per cent. Now these months include a period nine months after the time when the cholera prevailed, namely, August and September, 1832. It must be borne in mind that the ordinary average excess of male births, ascertained by former calculations, amounts to about 7 per cent., so that the diminution of male conceptions during the cholera, was at the rate of more than 17 per cent.

The effects of this epidemic upon the animal economy were not limited to those wrought through the disease alone; but included many strong moral and depressing influences exerted during most of the year, embracing the painful periods of anticipation and presence of the epidemic, with the secondary effects of the meagre diet generally adopted.

The amount of conceptions during six months subsequent to the commencement of the cholera, exhibit a preponderance of females.

	Males.	Females.
Thus, the conceptions in August 1832, as shown by the births in April 1833, were	272	286
The conceptions in September 1832, by the births of May 1833, were	260	304
" " October 1832, " June 1833, "	285	283
" " November 1232, " July 1833, "	304	296
" " December 1832, " Aug. 1833, "	361	330
" " January 1833, " Sept. 1833, "	344	352
	1826	1851

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* We should, perhaps, limit this remark to reproduction so far as the human species is concerned, for we are aware that experimental observations have shown that with sheep and some other inferior animals, certain measures pursued in coupling have appeared to exert an influence in determining the sexes.

It is proper to state that a slight visitation of epidemic cholera occurred in 1834, chiefly in the month of October, and that the returns of births which took place in June 1835, show a considerable falling off in the male births, which, instead of 7, amounted to only about 4 per cent. To all who have a distinct recollection of the two occurrences, it must be well known, that the solicitude and other depressing agencies operated in a trifling degree, compared with what they did in the first visitation.*

In looking abroad to see whether any corroboration of the casual observation made in Philadelphia was furnished by other places where cholera had prevailed, in the absence of the necessary data in our own country, we appealed to the ample and accurate records of Paris, where, as is well known, the malignant cholera committed great ravages in 1832. Here we found, in a mass of no less than 33,367 births, a similar reduction in the proportion of the males, discovered in the Philadelphia reports. In addition to the confirmation of the singular fact thus furnished, the distinction made in Paris between the legitimate and illegitimate births, furnishes other evidence of a highly interesting nature, as will be perceived from the following statements.

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* The births in Philadelphia, for each of the 21 years in which a registration has been kept, with the proportions of the sexes, and excess of males, are as follows:

	Males.	Females.	Totals.	Excess of male births.
1820(*a*)	1709	1501	3210	208
1821	2630	2417	5047	213
1822	3021	2701	5722	320
1823	2977	2836	5813	141
1824	3062	2771	5833	291
1825	3444	3181	6626	262
1826	3526	3219	6745	307
1827	3581	3452	7033	129
1828	3694	3506	7200	188
1829	3638	3357	6995	281
1830	3996	3632	7628	364
1831	3787	3555	7342	232
1832	3834	3419	7253	415
1833	3840	3802	7642	38
1834	3937	3635	7572	302
1835	4041	3815	7856	226
1836	3864	3544	7408	320
1837	4235	3953	8188	282
1838	3982	3798	7780	184
1839	3769	3493	7262	276
1840	4223	4010	8233	213

(*a*) Only nine months of this year are included in the returns.

An estimate of the births in Paris for 1832, gives of

	Males.	Females.	Total.
Legitimates, - -	11,288	10,557	21,845
Illegitimates, - -	5,032	4,853	9,885
	16,320	15,410	31,730
	15,410		
	910		

Taking the returns for the whole year 1832, the legitimate males exceed the females about 6½ per cent., whilst the male excess with the illegitimate was about 3½ per cent.

When, however, the births are computed for December alone, that is to say, the ninth month after the most fatal ravages of the cholera, we find the excess of males entirely lost, and, instead, a considerable female preponderance. Thus:

	Males.	Females.	Total.
The legitimates were, - -	645	679	1324
The illegitimates, - - -	200	199	399
	845	878	1723

The births in Paris during 1833 were as follows:

		Totals.	
Males, legitimate, - - - -	11,852	16,891	Males.
Do. illegitimate, - - - -	5,039		
Females, legitimate, - - - -	11,434	16,476	Females.
Do. illegitimate, - - -	5,042		
Excess of male births, - - - - -		415	

Of the grand total of births in Paris for 1833, the legitimate constitute 23,286, of which there were 11,852 males, and 11,434 females, showing an excess of males of only 3½ per cent. The number of these born at home is 22,861, viz., 11,642 males, 11,219 females; showing an excess of males of about 3¾ per cent.

The legitimate births in hospitals were 425, of which 209 were males, and 215 females, giving a small female excess of the legitimate births in hospitals.

Now the portion of the population upon which the cholera of 1832 bore hardest, was unquestionably that made up of the *lower* classes—the same which furnishes most of the illegitimate births, and in which, immediately after the cholera, we find the usual male preponderance annihilated, and a small *excess of female births.*

In France, and elsewhere in Europe, it has been ascertained that the excess of male births is always less among the natural-born than with the legitimate. The results of estimates based upon a long series of annual observations in Paris, show that with the children born out of wedlock, the proportion of males to females is as 23 to 22, an excess of males of only about 4 per cent. Among the legitimate births, there are 16 males to 15 females, or a male excess of about 6 per cent.

When we consider the Paris births in 1833, with regard to the particular arrondissements, as indicating the parts inhabited by the rich, who were nearly exempt from cholera, and the poor who perished by thousands, we find the following results.

In the 1st, 2d, 3d and 4th arrondissements, comprising the most populous and wealthy portion of the city, the total number of births was 6,664, of which 3,458 were males, and 3,206 females, being an excess in the males of nearly 7½ per cent.

The legitimate births at home, representing that portion of the population best provided for, were 5,126, viz., 2,666 males, and 2,460 females, showing a male excess of about 7¾ per cent.

The illegitimate births *at home* amounted to 1511, viz., 779 males, and 732 females, showing a male excess of 6 per cent.

The births in the hospitals were so few as to make no sensible change in the results given.

Let us now go to those parts of Paris where the cholera prevailed with such fatal fury, that, between the 26th of March and 18th of April, 1832, it swept off no less than 10,476 victims, the number of persons attacked being estimated at 30,000, not including the milder cases.

These were the ill-ventilated districts embraced in the 8th, 9th, 10th and 12th arrondissements, where the poor and necessitous most abound.

The total of legitimate births *at home* was 6155, viz., 3137 males, and 3028 females, a male excess of about 3¼ per cent.

The legitimate births in hospitals were 301, viz., 179 males, and 188 females, a female excess of about 5 per cent.

The whole number of the illegitimate was 5617, viz., 2801 males, and 2816 females, showing a female excess of 15. Of these,

The illegitimate births *at home* were 1622, viz., 815 males, and 807 females, being a male excess of less than 1 per cent.

The illegitimate births at the hospitals were 3995, viz., 1986 males, and 2009 females, showing a *female* excess of 23.

The total amount of legitimate and illegitimate births in the 8th, 9th, 10th and 12th arrondissements was 12,139, of which the males were 6117, and the females 6022, showing a male excess of only about 1½ per cent.

But it was in the 12th arrondissement that the greatest ravages of cholera were felt; and the births in this constitute about half of those reported for the 8th, 9th, 10th and 12th arrondissements, namely, 6134, of which 3046 were males, and 3088 females.

Among the legitimates born at home, in this arrondissement, amounting to 1599, the males were 793, the females 806. The illegitimate births in hospitals were 3779, viz., 1860 males, and 1919 females, a female excess of 59.

Thus we find that, in the portions of Paris exempt from cholera in 1832, the births in 1833 show the unusually large excess of males of 7½ to 7¾ per cent. Even among the illegitimate births, the male excess was swelled to 6 per cent. But in those parts of Paris which bore the brunt of the cholera, the male excess with the legitimate was reduced to 3½ per cent., whilst, with the illegitimate, the female births actually preponderated.*

The reports we possess only show the Paris births in each arrondissement for the entire year, the monthly statements including the whole of the arrondissements. We are thus prevented from exhibiting the effects of the influences under investigation, as they operated in particular months in the separate arrondissements. This last, could it have been effected, would have been highly interesting.

An attentive inspection of the very extensive reports made in several of the most enlightened countries of Europe, has proved to us most conclusively, that every influence operating in a community to maintain a high state of physical health and energy, leads to an increase in the proportion of male births; whilst, on the contrary, every agency, whether moral or physical, the effect of which may be to reduce the forces of organic life, will diminish such preponderance. In many parts of Europe, where the general population is over-worked and under-fed, the excess of male births is very small. Throughout Prussia and France, the excess of male legitimate births is usually under 6 per cent., and in England about 5 per cent. for the kingdom at large. In Philadelphia, where the condition of the general population is so favourable, the male births generally exceed the female about 7 per cent., whilst, in the rural districts of the United States, and especially in those most newly settled, the predominance of male children is much greater.†

M. Quetelet, of Brussels, who has devoted much attention to subjects connected with the movements of population, in the course of one of his late most elaborate expositions, makes the following observation: "Il est

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* Viewed in point of numbers, the Paris births in 1832 exhibit a considerable diminution, amounting to about 5 per cent. less than the number reported in 1833. In the monthly returns, the falling off first manifests itself in August, 1832, and continues to February, 1833, from which it would seem that influences unfavourable to reproduction set in about the month of December, 1831, and continued till May, 1832, a space of about six months, including the period when the cholera prevailed. About nine months afterwards, in 1833, the births experienced a sudden increase from 2053 to 2569. This seems to show that, about the month of June, 1832, there was a subsidence of the influences unfavourable to reproduction, which had been prevailing for some six months, followed by a restoration to extraordinary vigour, causing the male excess for the whole year to rise to 6, 7½, and even 7¾ per cent., according to the classes of Parisian population.

† See American Journal of the Medical Sciences for Nov. 1827.

un fait remarquable, bien établi aujourd'hui quoiqu'on n'en connaisse point encore les causes, c'est qu'il nait annuellement plus de garçons que de filles."

We have not the presumption to attempt an explanation of the great primary law regulating the distribution of the sexes. But, at the same time, we believe that the facts just adduced, and others to which we shall refer, show causes—and some of these, more or less under human control—which operate in a very appreciable degree in determining the proportions of males and females in the human race.

Disease, exhausting labour, scanty and meagre diet, impure air, intemperance and other social evils, are depressing influences, the force of most of which bears much more heavily upon the inhabitants of cities than upon those of places less densely populated.

An examination of the returns made for many years in France, Belgium and England, embracing millions of births, shows everywhere a greater excess of males born in the rural population than in cities.* Here, then, are causes specified and always existing, which exert a decided influence in determining the proportions of the sexes born. When, however, we come to estimate the influence exerted upon large masses of people subjected to a pestilence singularly calculated to exhaust the physical energies, we view the subject as if placed in the focus of a magnifier. The depressing forces ordinarily existing we find capable of diminishing the males one or two per cent., whilst those exerted by a severe epidemic, like that experienced in Paris and Philadelphia, have brought down the ordinary male excess of about 6 or 7 per cent. to only 1 per cent. When the estimate is made so as to include the births in Philadelphia for the months of April and May, 1833, the conceptions of which took place in July and August, 1832, as well as the illegitimate births of Paris, we actually see the usual male excess annihilated and substituted by a female preponderance.

To exhibit this subject in a still stronger light, let us take the sum of male excess, and instead of comparing it with the whole amount of male births, consider it by itself. Suppose the sum of 400 to represent the excess of males in 10,000 city births, and 600 the excess of males in the same number of country births. The excess of males in the first-named districts would, therefore, be 33 per cent., or one-third less than that in the more rural districts, and this under circumstances ordinarily existing. But when the agencies exerted by the prevalence of a severe epidemic like the cholera, are brought to bear upon the population, the male excess sinks about 80 per cent. below the ordinary average.

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* Observations collected in England of late years, and published in detail in the annual reports of the Registrar-General, show the preponderance of male births greatest in the northern and western divisions, including Wales; and it is precisely here where we should expect the powers of organic life manifested in a higher degree than in the southern divisions of the island, the seats of the metropolitan cities, where more ease, luxury, and effeminacy exist. In the *American Journal of the Medical Sciences* for January, 1844, p. 167, will be found an abstract from a report of the British Registrar-General for three years, during which there was a registration of the birth of 760,983 boys, and 725,689 girls. The excess of males in all the districts is 4.86 per cent., or in the proportion of 10,486 boys to 10,000 girls. In the northern and western divisions, the excess of boys amounts to 5.39 per cent., whilst in the southern and metropolitan districts, the males at birth exceed the females but 4.35 per cent.

I believe it will be found that the extensive prevalence of every severe zimotic epidemic, or endemic disease; every occurrence, in fact, which exerts, either directly or indirectly, a decided depressing effect upon a community, will be indicated in the record of births by a conspicuous reduction in the proportion of males.

In our table showing the births in Philadelphia, there is a perceptible falling off in the preponderance of males, for the years 1837 and 1838.—This may, perhaps, be ascribed to the destruction of business and embarrassment so generally experienced, and which commenced in 1836. The intense anxiety and great distress which prevailed and was kept up for some years after the financial crisis, must certainly have operated strongly upon a large commercial and manufacturing community, and, like all other depressing influences, tended, by indirect means, to diminish the energies of organic life.

When a pestilence or violent epidemic passes through a community, it is generally the most feeble portion of the population that is swept off. The births soon after will exhibit an increase in the amount of males, because the parents will be those endowed with vital energies above the ordinary average, a proof of which is their exemption, or recovery, from disease.

We think there is strong reason to believe, that the institution of polygamy grew out of a preponderance in the amount of female population, induced, perhaps, by a scanty supply of food, or from the use of a description of diet not calculated to maintain a high condition of physical energy. Polygamy once established as a common usage, must tend to foster itself.

In conclusion, it appears to us that the proportions of the sexes at birth are, to a considerable extent, subjected to circumstances more or less under human control, and that all measures tending to lessen disease, and promote the welfare and comfort of a population, while they serve immediately to increase the capacities for profitable labour, tend also to promote the multiplication of the sex supplying the main physical power.

Art. VI.—*Excision of the Cervix Uteri for Carcinomatous Disease.*—By Washington L. Atlee, M. D., Professor of Medical Chemistry in the Medical Department of Pennsylvania College, Philadelphia.

Nov. 11, 1846, I was requested to visit Mrs. W., a lady 46 years of age, whose husband is still living. She has had nine living children, the youngest of whom is twelve years old, and one miscarriage—the first gestation—when about three months advanced. She has always been regular in her menstrual periods until September, 1845, after which menstruation ceased. She subsequently became annoyed by a troublesome leucorrhœa, which continued all winter, occasionally being tinged with blood and matter. Early in April, 1846, after having been much fatigued by a long walk, she was attacked with violent uterine pains and copious hemorrhage, which forced her to bed. She kept her bed about one month, during the time suffering greatly, and becoming very much reduced in flesh and strength. She could now discover, by introducing her finger, something like a tumour in the vagina. After this attack, she again recruited her general health, but in the latter part of June, was again prostrated by bleeding, at which time she passed from the vagina something which, she said, resembled a portion of hollow skin about the length of the finger. The bleeding again ceased, but again recurred upon using injections prescribed by her physician. The case now assumed so serious an aspect that she came to Philadelphia for professional advice.

I examined the patient for the first time, on the day above stated, by the toucher, and again, on the 15th of the same month, by the speculum. My opinion of the case was requested by the husband to be given in writing, in order that it might be submitted to her physicians at home, and is as follows:—

"There is, in my opinion, a tumour, about two inches in diameter, of a flesh-colour, seated upon the posterior lip of the os uteri, and appears to have originated on its inferior border, and, developing itself towards the vagina, has extended the lip forwards and backwards, so as to invert the edges, without appreciably disturbing the integrity of the mucous tissue covering the anterior and posterior surfaces. The whole lower aspect of this tumour is ulcerated and covered with semi-botryoidal projections, which bleed upon handling. The tumour is seated upon a dense tissue, which dense tissue does not implicate the walls of the uterus, nor any point above the insertion of the upper part of the vagina. The uterus is retroverted, its body being easily felt, and capable of being well examined *per rectum*. The anterior lip of the os tincæ, the vagina throughout its whole extent, the ovaries and broad ligaments, are free from disease. No glandular enlargements are discoverable in the pelvic cavity, in the groin, or elsewhere, and the external genitals are healthy. There is no fetid discharge, no sharp lancinating pains, no constitutional symptoms. On the contrary, Mrs. W. appears in excellent health, enjoys refreshing sleep and good appetite, and is free from much suffering. The pulse is soft, full, and open, ranging between 80 and 90 when free from nervous excitement; its highest point, during the agitation antecedent to an instrumental examination, being only 104. The tongue is very slightly furred, and moist. The skin soft and moist—of good colour and temperature. Expression of countenance calm.

"Viewing these symptoms collectively, I consider Mrs. W.'s case one purely of '*carcinomatous ulcer*,' in which the hardening of the tissue is *consecutive* to the existence of the ulceration, and not a case of '*ulcerated* *scirrhus*,' or '*ulcerated cancer*,' in which the hardening of the tissue *precedes* the ulcer. This is a distinction of the utmost importance in deciding upon the propriety of any course of treatment, surgical or otherwise. [Vide *Colombat on Diseases of Females*, by Charles D. Meigs, M. D., 1845, p. 327.]

"Colombat says, 'a cutting instrument, under these circumstances, [*i. e.* in *carcinomatous ulcers*,] can always cut beyond the limits of the disease. It is in this condition, more than any other, that the operation is called for, and promises the best chance of success; because the ulceration, which has been developed from without inwards, reposes upon a secondary induration of no great depth.' [p. 328.]

"With this view of the nature of her disease, associated as it is with very favourable symptoms, appearing, indeed, as a local affection, I consider that an operation for the excision of the diseased structure perfectly justifiable, and affording, at this stage of its progress, the only chance of escape.

"The operation is not likely to be a very painful one. It has its dangers: bleeding from the wound, inflammation of the womb and its appendages, inflammation of the peritoneum, nervous shock, and lastly, the reproduction of the disease. The first four, although more or less dangerous, are within the power of remedial treatment, and every day's delay increases the hazard of all.

"Should Mrs. W., after weighing carefully all the circumstances connected with her case, and with the operation, conclude to avail herself of this last resource, and desire me to undertake her case, I shall feel bound, under this opinion, by a conscientious regard to professional duty and to the welfare of the patient, to accede; and I sincerely hope, through the blessing of God, that the means may prove successful.

"WASHINGTON L. ATLEE, M. D.

"*Philadelphia*, Nov. 17, 1846."

December 1*st*. The patient was taken to New York with the hope of getting relief, without resorting to surgical interference, and, after spending eight or nine days there, returned completely disheartened and unnerved. She had had severe floodings, was now much worse, and was suffering considerable gastric distress, and agony through the pelvic region.

11*th*. Dr. George McClellan examined the patient in consultation, and, agreeing in every particular with the above opinion, recommended the resort to the knife.

The same evening the patient sent for me, stated that she had weighed the matter well, had decided upon the operation, and desired me to perform it, wishing, at the same time, not to be informed of it until the day fixed for it. Pulse 84.

15*th*. The gastric disturbance was increased: there were considerable nausea and efforts to vomit. Pulse ranging from 88 to 104.

16*th*. Dr. Samuel G. Morton was now associated in the consultation. He examined the patient, and coincided with us in opinion as to the character of the disease and the propriety of an operation. Agreeably to a mutual understanding, the general health was now placed under Dr. Morton's special charge.

21*st*. The patient, having just passed through what was supposed to have been a menstrual period, and having recovered from the unpleasant symptoms mentioned, was considered in a proper condition for the operation, and accordingly I announced to her my intention to operate this morning at eleven o'clock. She desired to have it postponed until to-morrow, but upon urging it upon her, she readily yielded to our decision.

The patient was placed upon a bed, her hips resting on its edge, in the position as for the operation of lithotomy, and well supported by assistants. Drs. George McClellan, Morton, Sharpless, Gilbert, Wiltbank, Grant, and Jno. McClellan, and several female friends, were present. With a forceps* constructed for the purpose, I seized the two opposite sides of the base of the tumour near the insertion of the vagina into the cervix uteri, and making gentle, but continued traction in the direction of the os externum, brought the posterior border of the tumour in sight. Its anterior part being still under the arch of the pubis, I gave the handle of the forceps into the hands of Dr. George McClellan, and applied the double-branched tenaculum high up on its anterior face, and brought that portion of the tumour down. Firmly maintaining the parts in that position, I now with my left index finger accomplished the delivery of the whole mass through the os externum. Dr. McC. taking charge of both traction-instruments, I seized a probe-pointed bistoury, wrapped for about two-thirds its length, and cut above the insertion of the forceps, from before backwards towards the perineum, guiding the knife and guarding the parts with the left index finger, until I made the section complete, and severed, by a horizontal cut, the whole of the diseased mass.† The uterus at once receded. The parts were now carefully examined by the eye, and no diseased structure appearing, a dossil of lint, charged with a powder composed of galls, tannin, and gum-Arabic, was passed up to the cut surface of the uterus, a tampon of soft lint introduced, and the whole retained by a T bandage.

The section of the cervix did not resemble the cutting of scirrhus, but more that of the ordinary tissue of the uterus, and the structure cut seemed to be perfectly healthy, both in feel and appearance. Very little hemorrhage occurred—only one small artery spouted out, too insignificant to require attention, or to excite alarm. Nor was there any venous sinus opened.

The operation lasted four and a half minutes, and was borne by the patient with very little manifestations of pain—the most suffering having been produced by dragging down the uterus. No gastric disturbance was excited by these efforts, and the amount of force required to accomplish this object was much less than had been anticipated. Forty drops of black drop had been administered two hours before the operation, and fifteen more just before the patient was brought into the operating room. The bowels had been opened in the morning, and the bladder emptied just before the operation.

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* These forceps are eight inches long, have scissor-handles, and a loose conical-pivot joint, similar to that in Siebold's obstetric forceps. The joint is placed at three and a half inches from the extremity of the handles, and from this point the blades are tapering and round, and curve gently upwards. The blades continue parallel to each other for five and a half inches, then curving outwardly, become flattened, and again meet in serratures at their extremities, which have a perpendicular width of half an inch. The forceps, when closed, therefore, forms, at its distal extremity, an oblate-spheroid, of one inch and a half conjugate diameter.

By this arrangement I was capable of introducing the blades separately, and of fixing their teeth upon any part of the pedicle of the tumour, and then locking them, I could firmly secure the diseased mass in the ellipsoid. The instrument answered an admirable purpose. It is far superior for this operation to the forceps of Museaux, and much more simple than that recommended by Colombat.

† The portion removed, it was thought, by those present, would weigh five or six ounces. A wax model was taken of it, and is in the museum of the Medical Department of Pennsylvania College.

The patient was now conveyed to her room on the same bed used for the operation. A tendency to syncope followed, and arrow-root and brandy were exhibited. The extremities and surface became cold, the pulse feeble, and there were efforts to vomit. Aqua ammonia, in ten drop doses, was given at intervals, with brandy, arrow-root, and toast water. They were again rejected after accumulating, accompanied with the discharge of considerable flatus from the stomach at the same time. In taking drink, every swallow was followed by borborygmus.

These symptoms continued until about four o'clock, P. M. After this, there was very little gastric distress, the pulse began to be felt more sensibly, and the skin became warmer, the nose still remaining cold. The stimulants were now suspended, and cold water in teaspoonful doses substituted. The most distressing symptom now complained of, and which annoyed the patient from the beginning, was a strong desire to urinate, and this was supposed to be owing either to the styptic or the tampon. 7 *P.M.* Considered to be doing well. Had her lifted on to her own bed. Complains of cold feet. Relishes sago. 10 *P. M.* Has been quite calm for several hours, dozing some. Stomach quiet. Felt a little chilly, but asks occasionally to be fanned. Has some thirst, which is easily satisfied. Nose now warm, and reaction appears perfectly established. Pulse has ranged between 90 and 98, and is acquiring more volume. There has been no hemorrhage—a little bloody serum stained the cloths. Turned the patient upon her right side.

22*d*. 3 *A.M.* Complains of pain in the lower part of the abdomen, which was, in a measure, relieved by removing, with the catheter, about four ounces of healthy-looking urine, the first passed since the operation. Hands a good deal warmer; pulse 108, and fuller. Removed a portion of the lint from the vagina, which had dried, and adhered to the labia. Gave ʒi spts. nitr. dulc., and, about an hour afterwards, ten drops of M'Munn's elixir of opium. 9½ *A. M.* Has had altogether a comfortable night—as much so as usual—troubled occasionally with colic pains, which she is liable to. Pulse 88. Two hours after this, I removed a portion of the tampon, and injected the vagina with warm flax-seed tea. Removed six ounces of healthy urine. 1 *P. M.* Enema of flaxseed tea, followed by a suppository of soap, and by saline injections. Complains of a tender and painful spot in the left groin, which has troubled her a long time before the operation. Applied a warm emollient cataplasm to the abdomen. 10 *P. M.* Found the patient in much pain and agitation, in consequence of an accumulation of urine. Relieved by catheter. Afterwards, I withdrew the balance of the tampon, which had become very hard and consolidated, and washed out the vagina well with flaxseed tea. Administered fifteen drops of elixir of opium, which soon made her quiet and easy. Enema operated about 4 P. M. Pulse to-day, 88—98. Tongue rather more coated, but moist. Less thirst.

23*d*. 7 *A.M.* Has had a most delightful night; sweet and refreshing sleep. Free from pain and soreness. Feels very comfortable, and says she is much better. Pulse 88. Used catheter. The serous discharge from the vagina more copious. Vaginal injections. Ordered thin chicken-broth. 4 *P. M.* Has had some chilliness; is now feverish; pulse 104; skin warm and dry. Lifted the patient to another bed. Had her clothing and bed changed. Says she is more comfortable. Used catheter; also at 1 P. M. Urine containing a deposit of mucus. Ordered 5 grs. cryst. bicarb. pot. every two hours. Vaginal injections of a solution of the hypochlorite of lime. 12, *M.* During the evening, some tenderness over the hypogastrium, and left iliac region. Pulse 115. Catheterism. Much less mucus in the urine. Saline enema brought away feculent discharges, and the tenderness of the abdomen was somewhat relieved.

24*th.* 5 *A. M.* Pulse 118. Skin warm and dry. Tongue covered with a dense white coat. Some thirst. Abdominal tenderness the same. Catheterism. Examined per vaginam—not much heat or tenderness of the parts. Continued vaginal injections. Gave two teaspoonfuls of calcined magnesia. 1 *P. M.* Pulse has come down to 94. Magnesia operated twice, producing large, very feculent discharges; yellowish, and containing scybala. Catheterism. Has felt chilly about the thighs and arms, and complains of headache. 3 *P. M.* Considerable fever following the chill. Pulse 120, full and rather hard. Skin dry and warm. Complains of headache and burning heat. Venesection until skin was relaxed, and pulse softened, requiring about eight ounces of blood. Followed by fifteen drops of elixir of opium. Discharge from vagina less sanguineous. Catheterism. 7 *P. M.* Very comfortable since, excepting a transient neuralgic pain attacking the two elbows, and which was relieved by a rubefacient. Pulse 110, soft, full and open. Skin rather relaxed; soft. Temples moist. 12 *M.* Rested well all evening: tenderness of abdomen much diminished. Catheterism and vaginal injections.

25*th.* 9 *A. M.* Has passed quite a comfortable night. Passed urine without the catheter with little effort, and with no pain. Pulse 104; soft. Skin soft and pleasant to the touch. Tongue slightly furred and moist. Says she feels well. Assists herself better, and has very little soreness of the abdomen. 10 *P. M.* Has complained much this evening of pain in the head.—Pulse 120, but soft. Skin soft. Drew about four ounces of blood from the temples by leeches. Pulse fell afterwards to 100. Entire relief to head, and feels very comfortable. Catheterism.

26*th.* 9 *A. M.* Found the patient taking her own breakfast, with the table at her bedside. Had a very comfortable night; slept all night; pulse 100. 9 *P. M.* Pulse 92—98. Had a slight paroxysm of fever this afternoon, which appears to be periodical. Ordered 1 gr. extract of bark [Wetherill's] every two hours, when free from fever.

28*th.* 10 *A. M.* Patient did not sleep much last night; complains of uneasiness in the head, left hip and groin; but has a warm moist skin, and moist tongue, and pulse ninety-two. The stomach has been quite irritable since 5 A. M.; vomiting at times greenish mucus, and distressed considerably with nausea. The abdomen is soft, not distended, free from pain and soreness. The irritability of stomach was supposed to be owing to some badly cooked prunes she had eaten the day before yesterday. Catheterism. Applied a spice plaster to the gastric region. Ordered a teaspoonful of magnesia in camphor water, wine whey, and occasional doses of aqua ammonia. 2 *P. M.* Gastric distress diminishing. Enema brought away some feculent discharge, containing prune skins. Skin moist and warm; pulse 94. Ordered two teaspoonfuls of magnesia. 9 *P. M.* The gastric disturbance has been gradually subsiding, and is now entirely gone. Has had several discharges from the bowels containing prune skins. Complains of some disturbance of the head, and good deal of heat, there being slight febrile excitement. *Note.* The patient had taken a dose of elixir of opium soon after having eaten prunes, which is supposed to have suspended digestion. Being retained in the stomach and bowels, they were a source of irritation until discharged by medicine.

29th. 9 *A. M.* Has had a comfortable night. Bowels opened; no further evidence of undigested prunes. Pulse 90, soft; skin good; tongue moist and less furred. Complains of some confusion of head. 9 *P. M.* Pulse 87—100. Passed a good day; washed out the vagina with flaxseed tea and creasote, which brought away several small particles of dead tissue imbedded in muco-purulent discharge. A teaspoonful of the following mixture was ordered every two hours. ℞.—Emuls. acac. arab. ℥j; pilul. cærul. grs. iv.—M.

30th. 10 *A. M.* Rested tolerably well last night without an anodyne, excepting that she had a feeling of pressure on the bladder and a desire to urinate oftener than usual. Pulse 88—94; skin soft; tongue cleaner; washed out of the vagina more of the sphacelated tissue. Catheterism Complains of cerebral disturbance. Ordered blisters behind the left ear. 9 *P. M.* Head and bladder better. A discharge of laudable sanguinolent pus.

Jan. 2d, 1847. 10 *A. M.* Has been getting along very well. Examined the wound with the speculum for the first time since the operation, Dr. Morton being present. The uterus is more elevated than before, the cut surface looks quite healthy, and is coated with lymph, and the lining membrane of the vagina has a healthy aspect. A slight abrasion of the wound was made by the speculum.

3d, 10 *A. M.* Passed a restless night in consequence of a noisy house [hotel]. Feels weak and exhausted. Ordered one grain of citras quin. et ferri three times a day, and occasional doses of assafetida.

8th. Examined the wound, is in good condition. Has used animal food daily for the last week.

11th. Wound looks well. Applied nitrate of silver to induce more rapid cicatrization. Dr. McClellan present.

14th. Patient has been sitting up these two days. Examined per vaginam et rectum. The uterus still somewhat retroverted.

16th. Wound looks healthy. Applied nitr. arg.; and again on the 23d.

31st. Up to the present date, I washed out the vagina myself daily with flaxseed tea and a solution of creasote. After this it was attended to by the nurse.

Feb. 2d. The application of the caustic to-day was accompanied with some bleeding. Supposed menstruation.

5th. Some sanguineous discharge from the vagina, which, having been preceded and accompanied by the ordinary menstrual symptoms, was considered as catamenial.

8th. Examined per vaginam by the toucher. The finger was stained with blood. The cut surface felt smooth and even.

14th. Examined through the speculum. The surface of the wound was disposed to throw out granulations, which, however, had a healthy aspect, but were too much elevated in the centre of the wound. Slight bleeding while examining.

17th. Examined the wound with Dr. McClellan. Its surface was becoming more prominent. The speculum employed to-day was glass, and was made by cutting a conical lamp chimney into sections of about four inches long, which answered the purpose admirably. While the speculum was in situ, the surface of the wound was well covered over with the acid nitrate of mercury, afterwards penciled with a stick of vegetable caustic, a portion of which was also powdered and passed up against it upon some lint. The speculum was now stuffed with charpie, and the whole retained in position by the T bandage for about four hours.

18*th.* Examined the wound. Surface remained coated with caustic. Dr. Morton present.

24*th.* The granulations have increased; the wound has become more elevated in the centre, so as to make a rounded projection. Drs. McClellan and Morton being present, it was agreed to apply the caustic more effectually. In using the vegetable caustic this time, I continued applying the stick to the parts until it was melted down to a very sharp point. By means of this point I was able to penetrate into the substance of the structure just as readily as with the knife, and I continue to do so until I had completely disintegrated the whole of the diseased surface. The vagina was perfectly protected by means of the speculum. The speculum being stuffed with lint, it was retained for several hours by the T bandage. The lint having been first withdrawn, and the parts well syringed off with vinegar and water, the speculum was removed. In neither application of the vegetable caustic was there much suffering.

28*th.* Complains of considerable soreness of the vagina. Examined it; found it a good deal inflamed. An injection of a solution of sugar of lead and opium was used every two hours until it was relieved.

March 3*d.* Examined per vaginam. Inflammation much relieved. The lower surface of the uterus covered with sloughs, and the granulations all destroyed.

10*th.* The patient has been attacked with acute inflammation of the right kidney. She says that this is the third time that she has been so affected, twice previously to the operation. Cupping and leeching relieved her very much. Sloughing of the wound is going on well.

11*th.* In consequence of the uterus having become quite elevated, and the vagina contracted and elongated, the nurse could not so satisfactorily syringe off the sphacelating surface of the wound. I therefore again attended to this matter personally, and daily washed the wound through the speculum, and also detached the sloughs by means of the forceps as they became looser.

22*d.* The injections through the speculum have been continued daily. Sphacelation is nearly completed, the wound being nearly clean. There has been no bleeding since the last cauterization. The granulations have not sprung up again. All the parts seem in the most favorable condition. Drs. McClellan and Morton examined the parts with me to-day. All pleased. Applied the nitrate of silver lightly, to favour cicatrization.

25*th.* Ever since the nephritic attack, Mrs. W. has had something like remittent fever, with paroxysms at night. Her tongue has become red at the point, and is covered with a harsh fur towards the back part. Considerable gastric and intestinal irritation—flatulency—and globus hystericus. The distress being so great to-day, a blister was applied over the epigastrium, and one grain of blue mass was ordered every two hours through the day, and valerian at night.

26*th.* Much relieved. Passed a comfortable night. We again all examined the wound; looks well. The nitrate of silver was applied to a small raw surface.

There has been a discharge of pure laudable pus from the vagina ever since sphacelation commenced after the last application of the vegetable caustic.

30*th.* The patient has complained for several days of a very uneasy sensation in the larynx, and has a constant tendency to *screatus* or clearing-out, expectorating occasionally a portion of inspissated mucus. A spot tender to pressure was found upon the right side of the larynx. Ordered a blister as large as a shilling to be applied over it. This drew well, and afforded relief. She also received considerable relief from inhaling the following mixture. ℞.—Iodin., grs. vj; fol. cicutæ, grs. xij; æth. sulph. rectif. ℥i. M.

April 3*d.* Examined the wound; looks very healthy. The discharge consists of laudable pus, free from smell. The vagina is perfectly healthy in its aspect; has considerable tone, and is contracted.

14*th.* The patient was alarmed this evening by a large amount of healthy pus which flowed from the vagina, while in the act of defecating on the chamber. It was explained by supposing that an accumulation of pus had occurred in the upper part of the vaginal tube in consequence of a recumbent posture for forty-eight hours, there being, as it were, a cavity to contain it between the superior termination of the vagina and the body of the uterus in consequence of the absence of the tumour and of the os and cervix uteri.

24*th.* The wound has been examined regularly every two or three days. To-day Drs. McClellan, Morton, and myself examined it for the last time. The examination was carefully made through the speculum. The wound had a beautiful, smooth, even surface, and perfectly healthy aspect, and appeared covered with a thin epithelium. The os and cervix uteri were absent, and the body of the uterus below was excavated so as to form a hollow cone with apex above. The walls of the uterus, forming the base of this cone, were continued into the upper end of the vaginal tube. The vagina and external genitals were considered in a healthy condition. We severally expressed ourselves gratified with the favourable condition of the parts.

The patient's general health during the winter has not been good. She has been more or less annoyed with neuralgic, rheumatic and dyspeptic symptoms. Her pulse was generally eighty-four, but ranged as above stated. Tongue occasionally reddish at the end and edges, with a whitish fur; generally, however, it looked well. Although evidently cachectic, she is better in these respects, begins to relish food, and is preparing for her journey home to Pittsburgh.

May 4*th.* Mrs. W. left Philadelphia to return home. On the 8th, a telegraphic dispatch, dated at Pittsburgh, was received, saying that she arrived safely the evening before, was very glad to see her friends, and her friends rejoiced to see her. On the 10th, another message by telegraph made the melancholy announcement that she had died at 9 o'clock the previous evening [Sunday]. A post-mortem examination was immediately requested by telegraph, but was refused.

Remarks.—I offer no comment upon the above interesting case. The account is purely clinical, the notes having been made at the bed-side of the patient, and abridged to suit the pages of the Journal.

I refer your readers to the following authorities on this subject, viz:—*Duparque on the Uterus*, p. 351; *Colombat on Diseases of Females*, Prof. Meigs' edition, 1845, p. 327; *Lee on Tumours of the Uterus and Appendages*, pp. 95–108; *Lever on Organic Diseases of the Uterus*, p. 210; *Ashwell on Diseases of Women*, Goddard's edition, p. 295; *Simpson on Excision of the Cervix Uteri for Carcinomatous Disease*, Braithwaite's Retrospect, American edition, 1847, part 14th, p. 294.

ART. VII.—*Dissection of a Fungus Hæmatodes Oculi.* By W. CLAY WALLACE, M. D., New York.

To harden the tumour before examination, it was macerated in an alcoholic solution of corrosive sublimate, and after repeated washings it was again macerated in a solution of chloride of zinc. On separating the fissures at the apex, a number of small reddish stems similar to those supporting the minute flowers of a cauliflower, were seen to arise from the mass and support some of the crusts of the fungus. The tumour was opened mid-way between the apex and the optic nerve, and the encephaloid matter scraped away until the specimen was considerably injured before observing the principal stem.

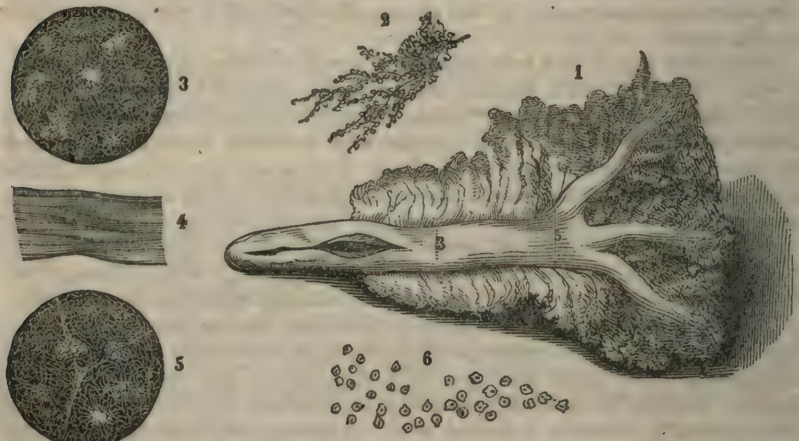

Fig. 1 represents the tumour as it appeared after the removal of a portion of the encephaloid matter. The principal stem or trunk was firm as tendon, and hollow when opened longitudinally. At nearly two inches from its origin, the trunk divided into several branches from which, and from the trunk itself, the medullary matter proceeded. When the latter was examined with a microscope, it was found to consist of a series of fibres, and granules, as represented at fig. 2. Some of the granules (fig. 6), which had fallen to the bottom of the fluid in which the preparation was immersed, exhibited on the application of a higher magnifying power, nuclei and irregular extremities by which they had probably been attached to the fibres. Fig. 3 is a magnified view of a transverse section of the stem at 3 in the first figure. Fig. 5 is a similar section at 5, where it is divided. Fig. 4 is a magnified longitudinal segment.

The appearance of the preparation, which I still possess, favours the opinion that fungus hæmatodes belongs to the class of parasites, as advanced by Kluge and Meyen, who have endeavoured to show that the encephaloid tumour possesses a vascular system of its own.

It has been observed the fungus was mutilated during the examination; this account will, therefore, be regarded as a very imperfect contribution to the pathology of this deplorable disease.

Art. VIII.—*Occlusion and Rigidity of the Os Uteri and Vagina.* By James D. Trask, M. D., Whiteplains, Westchester Co., New York.

Among the causes of rupture of the womb, enumerated in our monograph on that subject, in the last two numbers of this Journal, obliteration and extreme rigidity of the os uteri and of the vagina, were alluded to as of occasional occurrence. In connection with that inquiry, we collected all the instances that were within reach, of labours in which these complications were met with. This subject has received but little attention from medical men, and few text books on obstetrics make any allusion to it as a source of difficult labour, or to the treatment of this class of cases. Among those authors who refer to it, a considerable difference of opinion exists, as to the proper course to be pursued when such complications are met with; some appear to discountenance any intervention by operative procedure, while others, of equal respectability, recommend an early resort to division by the knife, of the occluded or strictured parts.

Most of the cases of reputed occlusion of the os uteri, are regarded by Baudelocque, Velpeau, Dewees, and Denman, as instances of undetected malposition of the uterus, by which the cervix is thrown backward to the sacrum, or to the one or the other side of the pelvis, and beyond reach of the finger. That error from this source has, in some instances, induced the attendant to make an artificial opening into the womb, the os being patent, but inaccessible, there can be no doubt; inasmuch as well attested instances of it* are recorded by Baudelocque and others.

We have thought that a series of cases of complete and partial obliteration of the os uteri and of the vagina, might prove instructive; as showing the consequences of neglect, the advantage gained by judicious interference, and as affording assistance in determining on the right course to be pursued.

1. *Cases of Complete Occlusion of the Os Uteri.*

Case I.—An Irish woman, stout built, ætat. 28. Two years before, she fell down stairs at the fourth month of her first pregnancy, and at once had flooding and pain, which lasted two days. Instruments were applied, and the patient delivered, during which she suffered great pain, and had dreadful flooding, fainting, and depression. A discharge of pus succeeded, and lasted until the second pregnancy.

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* Mr. North, in *Lond. Med. Gaz.*, vol. xx. p. 392.

The physician was called at noon. She had had strong pains since the preceding evening, but no show. The pains were urgent and powerful, forcing low down into the vagina, a dense, globular tumour, consisting of the head covered by the uterus. No os uteri could be felt, but where it should be, a firm hard point with three ridges diverging from it. Opiates were given, which almost entirely put a stop to the pains during the afternoon and night. Pains returned at 7 A. M., powerful, and rupture of the womb was feared. While the finger rested on the central part, something was suddenly felt to tear, and after two pains the finger was passed into the rent. This enlarged in the direction of the three cicatrices, and by 5 P. M., the opening was so large, that the membranes burst. The head did not advance for three hours; giddiness and headache came on; she was delivered by forceps of a full-sized, living child. She was well in ten days, with a slight purulent discharge, which left her in one week afterward.—*Dr. Wright*, from the *Montreal Med. Gaz.*, in *Lond. Med. Gaz.*, 1846, p. 688.

Case II.—Ætat. 40; good constitution; the mother of three children, the last having been born eight years before. Anteversion of the womb had been supposed to exist, and a pessary recommended.

At 6 A. M. she had been in labour thirty hours. No os uteri could be found with a probe or finger. The vagina was five inches in length, dry and swollen. The pains were regular and active. At 8 o'clock, A. M. in consultation, 4 P. M. was fixed for the performance of vaginal hysterotomy. The pains then not being very severe, it was deferred until 11 P. M. With a blunt pointed bistoury, an incision was made, of half an inch in length, layer by layer, through the uterus in the line between the bladder and rectum, and four ounces of liquor amnii escaped. This was crossed at right angles by another. There was no pain, or hemorrhage in the operation, and in one hour the child was born alive.

After the lochia ceased, a bougie was introduced frequently for some time. The aperture is now small and irregular, without a *cervix*. The catamenia returned in six weeks.

During the early months of gestation, she frequently injected strong lye of ashes, and even into the cavity of the womb (?) by a gum catheter, and at each time felt intolerable pain and also observed suppuration and detachment of the skin.—*Dr. Caffe* of Paris, from *Journ. Hebdom.* in *Arch. Gén.* See *Ryan's Journ.*, vol. vi., p. 87.

Case III.—In the first labour, the head was impacted, and the vectis employed. In the second labour, the pains were active for twenty-four hours, and for four or five hours, excruciating. No os uteri was detected by the midwife. The os could now be felt, the size of a sixpence, and the space within the circle was extremely thin and tough, thinner than the surrounding uterus, hermetically sealing the womb. This membrane was divided with a gum-lancet, and in four pains the os was so dilated as to admit the head. The pains now became slight, ergot was given, and the vectis used. —*Mr. Tompkins*, *Lond. Lancet*, 1831-2, vol. i. p. 749.

Case IV.—Ætat. 36, first child. The waters had dribbled away; no orifice was discoverable. On the descent of the head covered by the uterus, a thin portion was felt. A female catheter was passed through this, and then the finger. It tore like a thin membrane, the os dilated, and in an hour and a half, labour was terminated.—*Dr. Felix Hatin*, in *L'Experience*, Mai, 1839. See *Brit. and For. Rev.*, vol. ix. p. 263.

Case V.—Ætat. 23 or 24, Irish, first child. At 7 P. M. she had been in strong pains since the preceding evening, but there was no show; pains urgent and powerful, and no os to be perceived after several hours. At 2 P. M. a firm, globular mass was forced into the vagina by every pain, but there was no break in the surface. For several hours more, the pains were unusually severe; castor oil was given. Where the os should be, there was a minute point, somewhat thinner than the surrounding parts.

She had menstruated for fourteen years; discharge, pale and scanty; no catamenia since her marriage, nine months before. A copious reddish discharge took place three days before labour. The pulse was 120, 130, and very irritable; pains violent; skin irregularly hot and cold; features anxious. The point referred to was punctured, and an incision made toward the bladder, and towards the rectum, of one and a half or two inches; the last incision was followed by a few drachms of dark blood. The incisions were not made *laterally*, for fear of wounding the arteries of the neck. Operation produced no suffering; pains abated a little, and returned. At 4 A. M. next day, under a strong pain, the edge of the incision tore suddenly to the right side, and soon afterward, during an examination, the other toward the left sacro-iliac junction, both without hemorrhage. She became faint; pulse 140, 150, and stimulants were required. In two hours, powerful pains recurred, and the head was born at 11 A. M. The pains becoming inefficient, stimuli were given. The child was born alive, and the mother recovered. The vagina was very short after recovery. There was no cervix, but a puckered, irregular orifice, admitting the tip of the finger, with three cicatrices radiating from it. The left mamma had no nipple.—*Mr. Tweedie, Guy's Hospital Reports*, vol. ii. p. 258.—(*For a continuation of this, see Case XXII.*)

Case VI.—Three and a half years before, had twins; labour natural; but followed by puerperal fever,(?) from which she never entirely recovered. A putrid discharge continued for several months, and afterward appeared in the place of catamenia for two and a half years, when the menses appeared, and conception took place. The cervix had sloughed away, and the husband (a physician) now discovered that the os had become closed by an indurated membrane, which resembled a pig's bladder.

She was, as she supposed, three weeks beyond nine months, and had not felt the child for some time. There had been slight pains a few days before, which continued, but did not increase. Next day, Dr. Blundell detected a tendency to a dimple at the side of the os, and introduced a small sound through it. Soon afterward, she had violent bearing down pains. At midnight, there had been some discharge, but no opening was perceptible. The pulse was very rapid, and a most profuse perspiration broke out. She was left, and seen again at 10 A. M., and was then a little more collapsed. At noon, the os was found open, but the edges jagged, with a flap of tough, granular membrane, hanging from the posterior margin. Collapse increasing; the hand was introduced, and the child delivered by version. Slight hemorrhage followed the removal of the placenta, and she died in a half hour afterward. The child appeared to have been dead for some days.—*Mr. Waller*, reported by *Mr. Tweedie*, in *Guy's Hosp. Reports*, vol. iv. p. 120.

Case VII., VIII.—In both, the os was normally, exceedingly small, and the occlusion was produced by cellular membrane filling up the orifices. The lower part of the uterus was rendered tense and hard, so as, in one case, to resemble the bag of membranes. Case VIII. was fat and plethoric, and although bled four times, blood flowed from the mouth and nose at every pain, and she had been in labour eight days. Case VII. was in labour two days and nights. In both, the membrane was punctured by a female catheter—there was no laceration; delivery without assistance; children living.—From *Naegele's Thesis.* See *Ibid.*, p. 137.

Case IX.—Ætat. 35; second labour; pains were felt August 14; the next day no os could be discovered, by the midwife or a surgeon who was called in, though the uterus was forced low into the vagina. In the evening of the 16th the pains were less frequent and strong, and she was delirious at night. When seen on the morning of the 17th she was exhausted and worn out. The womb, stretched over the head and attenuated, was pushed almost to the mouth of the vagina, but no os was perceptible. The scalpel was then used for making an os. She was delivered of a dead child by forceps, and died in the evening at the end of nearly three days.—*Ibid.*

Cases X., XI.—The os in both closed by a membrane united to the margin of the aperture. In one, the finger was introduced; in the other, the point of a female catheter—instruments were used in neither—both children were alive, and both mothers recovered.—*Ibid.*

Case XII.—First pregnancy, during the whole of which she suffered from leucorrhœa. Labour commenced August 25th. There was no os, and on the 27th one was made by incision. Six hours afterward, she was delivered of a living child by forceps. Recovered well—the os retained the form of the incision—and the next labour was natural.—*Ibid.*

Case XIII.—Ætat. 42; first pregnancy. Labour began May 2d; no os could be found. On the 4th an os was made by incision, and in twenty-two hours was delivered by forceps.—*Ibid.*

Case XIV.—After miscarriage, extensive sloughing took place, embracing the os, leaving a contracted circle as a cicatrix. The head descended low, pushing the lower part of the uterus before it. After a considerable time, the strength being almost exhausted, a puncture was made by a bistoury, and an incision of considerable extent. The head was forced through, rending at right and left. Some alarming symptoms arose—the head was perforated and she was soon delivered. She recovered, and became pregnant again.—*Ibid.*, from *Dr. Gooch's Lectures.*

Case XV.—First pregnancy. No orifice could be discovered to the womb notwithstanding most careful examinations. The vulva was occupied by a solid body which distended it. A consultation failed in finding any opening to the womb. Convinced that the mother and child were in great peril, they decided to make an opening at the place of the os uteri. It was on the point of suffering a rupture. There was already a rent, involving a part of the thickness of the walls. This was the spot selected. Labour terminated spontaneously, and after it no cervix or os could be discovered. After two months the opening closed itself by degrees, and no accident followed the operation.—*M. Lauverjat.* See *Dict. des Sci. Méd.*, vol. xxiii. p. 301.

Case XVI.—Had been in labour fifteen or sixteen hours. Although the head was in the cavity of the pelvis near the vulva, no os could be felt by the midwife. The pains were very rapid and violent; M. Gautier first supposed it an obliquity of the womb, but after very careful examination no os could be found. The depth of the vagina was an inch in front, and an inch and a half behind. Vaginal hysterotomy was performed; and delivery effected by the forceps. There was some hemorrhage, but she soon recovered.

At the end of six weeks, the womb was very near the vulva, the vagina not being over an inch and a half long behind. These adhesions appeared to have been caused by a displacement of the womb, following a violent effort to vomit, by which the orifice of the womb was carried backward and the fundus over the pubes. Inflammation followed, uniting the mouth of the womb to the posterior wall of the vagina.—*M. Gautier*, in *Journ. de Méd.* See *Dict. des Sci. Méd.*, vol. xxiii.

Case XVII.—M. Morlaune, of Metz, found the head enveloped in the womb, already engaged in the vulva. Notwithstanding most careful examinations, in all directions, no os could be discovered. He was satisfied that hysterotomy was the only resource, but did not dare to resort to it, because the woman was in the sixth day of an ataxic fever, and therefore had no hope of saving her.—*Journ. d'Accouch.*, vol. i. See *Dict. des Sci. Méd.*, vol. xxiii.

Case XVIII.—Ætat. 30 years. January 11th, at the seventh month, on examination, in place of the os was a transverse bridle, seemingly a cicatrix.

Pains came on April 25th but produced no change in the neck. It was hoped that the os might become perceptible and open in the course of the labour, especially since a fluid like the liquor amnii tinged with meconium appeared. The 26th passed without any os appearing, though the pains were powerful and continuous and the head was engaged in the pelvis, pushing before it a corresponding portion of the womb. The entire hand was employed to explore the vagina to the *cul-de-sac*, and no opening found. After being forty-eight hours in labour, and the strength beginning to fail, a consultation determined to practice vaginal hysterotomy. This was performed fifty-six hours after the commencement of labour. Pains having ceased for many hours, the forceps were employed. Extraction was very difficult and the child dead. Recovery was favourable.

The incision had been made in the anterior wall with the *bistouri caché*. Eight days afterward the opening would scarcely admit a writing-quill. A sound was introduced but could not be borne. A small orifice remained, through which the menses escaped two months after delivery.—*MM. Lobstein, Flamant and Caillet.* See *Dict. des Sci. Méd.*, vol. xxiii.

Case XIX.—The patient, the mother of several children, was taken in labour December 18th, 1843, at 7 P. M., and was seen by Dr. Bedford next day at 7 P. M. Her pains were violent and she suffered intensely. There was obliteration of the os uteri. Dr. B. made a bi-lateral section of the uterus, and in ten minutes afterwards the patient was delivered of a living child. Both did well without one untoward symptom. The obliteration was caused by attempts to produce miscarriage with an instrument.—*Prof. G. S. Bedford*, in *New York Journ. of Med.*, March 1843.

Case XX.—Ætat. 36; first labour. Physician called at 5 A. M., November 6th. Pains were decided and regular, but no os uteri could be found on careful examination. At evening the pains had increased and become expulsive, but no os could be found by him or by Prof. V. Mott, who had been sent for. During the night, nothing but a globular, smooth, uniform surface could be felt. Was first seen by Dr. Bedford at 1 P. M., November 7th, after having been in more or less active labour for forty hours. There was no trace of an os. Dr. B. made a bi-lateral section of the cervix, with a probe-pointed bistoury, "to within a line or two of the peritoneal cavity," and the head was felt. The substance of the neck felt like cartilage. At 6 P. M., no increase of the opening; an incision was made in the posterior lip, and tart. emet. given. Nov. 8th, at 2 A. M., the incisions were enlarged, and two more made toward the ischiatic bones. At 11 A. M., opening somewhat enlarged and the parts hot. At 6 P. M., strength failed, pulse 140, the head at the brim, the opening of the womb not larger than a dollar, rigid and unyielding. Forceps were applied and, after great effort, the child was born alive. The mother suffered only from inability to pass water for two weeks. Mother and child both well three months afterward.—*Prof. Bedford*, *Amer. Journ. of the Med. Sciences*, April 1848.

Case XXI.—Contraction of the pelvis and cohesion of the sides of the os uteri, leaving no vestige of a passage—the result of inflammation and suppuration following previous delivery.

After a labour of two days the vagina was dilated, which afforded a view of the contracted os. An incision a half inch deep was made and the head touched. The parts were of cartilaginous hardness, not yielding to pains, and requiring several subsequent incisions. The opening not yielding sufficiently, perforation was resorted to. High fever followed, and she died in twenty-four hours.—See *Smellie's Works*, vol iii. p. 55.

We propose to inquire into the *causes, pathological condition, termination if left alone, different modes of interference, and results of interference in this class of cases.*

In two instances, the lesion could be traced to inflammation following previous severe instrumental labour; in another, to inflammation, after an ordinary labour; and, in another, to inflammation following a previous miscarriage. In one instance it was caused by inflammation succeeding a descent of the womb into the vagina, after severe vomiting. In two it was the result of attempts to procure abortion, and in one it appeared due to a congenital malformation; no cervix being discovered in a subsequent delivery, and the patient having but one mamma.

As to the actual condition of the diseased parts, we learn that in case I., there was a tense globular tumour forced into the vagina, consisting of the head, covered by the uterus. No os uteri could be felt, but in its place was a firm point with three ridges diverging from it.

In Case II. there was considerable thickness of tissue divided by the knife, before the cavity of the womb was reached. In Cases IX., XIII., XVII., XX., no os uteri was perceptible. Case XII. had suffered from leucorrhœa during pregnancy, and there was no os uteri until the knife was used—the one thus made retained the form of the incision. Case XIV. had had sloughing of the whole cervix, leaving "a contracted circle" as a cicatrix.

In Case XV. there was no os, but rupture had already taken place in some of the uterine fibres. In Case XVI. there had been anteversion of the womb, followed by inflammation producing adhesions of the vagina and cervix, so as to render the os impervious. In Case XVIII. there was a transverse bridle, seemingly a cicatrix. In Case XIX. there was obliteration of the os and an irregularity of surface where the os should have been. In Cases XX. and XXI. the parts felt like cartilage. In most of these instances the source of the obstructed condition of the mouth of the womb is obvious enough; adhesions having formed, as a consequence of previous inflammation, and the condition itself was recognized by the hardened, irregular lines of cicatrization radiating from a single point, or encircling the cervix.

In several other instances, however, there was a condition of things productive of similar consequences and yet of a somewhat different character. In Case III. the os uteri could be felt, of the size of a sixpence, and the space within the circle was extremely thin and tough, thinner than the surrounding womb, and yet the womb was hermetically sealed by it. In Case IV. no orifice was discoverable, but on descent of the head a thinner portion of the uterus was felt, through which a female catheter was passed, and then the finger, and delivery was soon completed. In Case V. there was a minute point, thinner than the surrounding parts, where the os should have been. In Case VI. the cervix had sloughed and the os became closed by a membrane resembling a pig's bladder. In Cases VII. and VIII. the occlusion was produced by cellular membrane filling up the orifice, and both yielded to the point of a female catheter. In Cases X., XI., the os was closed by a membrane united to the margin of the aperture, which was broken through in one case with the finger, and in the other by a female catheter.

The latter are examples of what Naegele has described as "conglutination of the os uteri," in a thesis devoted to that subject. The obstruction in these cases, though removed by a slight force applied directly to it by a blunt instrument, is, nevertheless, such as very seriously to retard labour. According to Naegele, this closure of the os is due to a false membrane, or filamentous tissue, possessing a moderate degree of resistance, which he considers the result of unsuspected inflammation of the neck of the womb. Dr. Ashwell (*Guy's Hosp. Reps.*, vol. iv.), adopts this explanation, and in remarking upon it, says, "It is well known, that normally, this orifice is sometimes very small; at others, instead of a transverse chink—its most usual form—there is merely a diminutive circular aperture. In either of these conditions of the orifice, complete obliteration may be easily produced, by an amount of local inflammation following conception, which would not seriously interfere with the pregnancy or the health of the individual. It is important to bear in mind, that such closure may not be attended by any other disease of the parts, the adhesions may be firm and complete, but there may be no scirrhous induration, no distinct nodule of hard substance; the neck of the uterus will be forced down by the pains; and the sensation imparted to the finger, on examination, during labour, will be quite natural, excepting only that no aperture will be found."

The inflammatory origin of these slighter degrees of obstruction of the os uteri is not allowed by some. Thus, Jacquemier, tom. ii. p. 181, asks, "Is this a veritable agglutination? Is this pretended plastic tissue anything more than a portion of exuberant membrana decidua? Do not these cases belong rather to some of those conditions of the cervix which render dilatation very difficult?"

The strength of the adventitious substance here deposited, varies, as we have seen, from that of cellular tissue, easily broken down, to that of a firmer consistence, requiring, as in Case III., a cutting instrument for its division. The history of Case VI. clearly points out the inflammatory origin of the obstructing membrane; so also in Case III., there had been difficulty in a previous delivery, and the membrane occluding the mouth of the womb was exceedingly thin and tough, hermetically sealing it. In both these instances, it is evident that the obliteration of the os must have taken place subsequent to impregnation. In both, it would appear that the inflammation of the cervix continued for some time after delivery; long enough for conception to have taken place; and that it finally terminated in the production of the false membrane. In Case V., there was probably a congenital defect in the structure of the cervix, as well as previous inflammation. The previous history of the remaining cases of conglutination of the os, throws no light on its origin in them. The degree of firmness which the membrane possesses, taken in connection with its origin in Cases III. and VI., renders it highly probable, that, as Dr. Ashwell suggests, it is due to inflammation occurring after conception, which does not render itself manifest by any distinct symptoms.

The *diagnosis* of obliteration of the os uteri is sometimes a matter of difficulty. As we have remarked, many practitioners of experience are disposed to deny the probability of its existence, and to attribute reputed cases to anteversion, while others, of equal experience, have more frequently met with instances of obliteration. Dr. Ashwell, in the paper above quoted, says, "he never has met with any seriously protracted labours from obliquity," and yet, indisputable instances of it have been met with, in which it was productive of imminent hazard. Great embarrassment will, at any rate, be felt by the inexperienced, when obliquity exists in any considerable degree.

On failure to reach the os uteri in a vaginal examination, the probability of some form of obliquity of the womb would naturally present itself to the practitioner. Bearing in mind the different positions which the uterus might assume, he would carefully explore the whole pelvic cavity, if by chance, the os might be found in contact with the promontory of the sacrum, or one of the sides of the pelvis. Under the influence of uterine contraction, the head is forced into the hollow of the pelvis, forming a hard, tense, globular tumour, on the surface of which, any opening, did it exist, could be detected by the finger. If there have been considerable disorganization, the place where the os should be, is recognized by an indurated cicatrix, or if there be simple agglutination of the os, there will be a dimple or depression below the surface of the surrounding parts, indicating the situation of the uterine mouth.

Our cases, with a single exception, afford no illustration of the result, *when the patient is abandoned to the efforts of nature.* In Case XVII., the woman was allowed to remain undelivered, because sick with fever, of which alone she might have died. Case VI., however, is a valuable commentary on the practice of leaving such cases until the powers of the system are exhausted. In this instance, the unfortunate patient lingered along from day to day, and sank into a state of collapse from delay in affording her proper assistance.

When the os is obliterated, it is evident that the case must terminate either in rupture of the body of the womb, and escape of the fœtus into the peritoneal cavity, or in laceration of the morbid adhesions, after long continued pains, labour being completed with or without artificial aid, as in Cases I. and XV.,—or in exhaustion and death of the patient undelivered, as in Case VI. It is evident that these cases require careful watching and judicious management, and it becomes us to inquire as to *the proper time for interference, and the most suitable means to be adopted.*

Satisfied that obliteration of the os exists, our course will be determined very much by the character and degree of the morbid alterations. In cases of obstruction arising from the deposit of a thin filamentous or cellular tissue, Naegele recommends that it should be broken down by the introduction of a blunt instrument, as a female catheter, or by the finger. This, in Cases IV., VII., VIII., X., XI., was easily effected. The membrane occluding the os, although much thinner than the surrounding parts, is nevertheless, sometimes sufficiently firm to resist most powerful contractions, and to require division by a cutting instrument. In Case III., though the pains had been active for twenty-four hours, for four or five hours excruciating, no advance had been made in labour, till the membrane was divided by a gum lancet, and then delivery was soon accomplished. In Case VI., the membrane was perforated, but a sufficient degree of dilatation did not take place to allow of version, until she was exhausted by protracted suffering.

Since, then, this membrane must be torn before the head can emerge from the womb, we know of nothing to be gained by waiting to see, if perchance nature will accomplish the laceration; and why ought we not, as soon as the expulsive pains have clearly revealed this obstruction, to destroy it artificially by such means as may be indicated? We see nothing to be gained by delay, or by preparatory venesections, &c.

If the existence of a comparatively thin, delicate false membrane, can cause serious delay to the parturient effort, how much more distinctly is artificial interference demanded, when the sides of the os uteri have become adherent from severe inflammation, and when no vestige of the natural structure remains; when, instead of a cellular tissue that may be torn by the finger, or a sound, we have a firmly organized adventitious deposit of perhaps cartilaginous hardness. There can be no doubt, that in such cases, an incision should be made into the womb, at the seat of the obliterated os. On this point, it is to be supposed, all intelligent persons would agree, and its propriety is placed beyond doubt, by the cases we have related. The question that would cause most embarrassment, would be as to the proper time for interference. Why should not the operation be performed so soon as we have satisfactory evidence that such obliteration exists? Are the risks attending the operation so great as the risks attending delay? Have we any encouragement to wait for the employment of venesection, diaphoretics, nauseants, and fomentations?

The reply afforded by the cases cited, to these inquiries, is distinctly, that nothing is gained by delay, but much periled by resorting to a palliative course of treatment; and that the chances of safety to mother and child, are much enhanced by an early resort to the vaginal section, before the patient's strength has been exhausted by protracted suffering. In Cases II., V., XII., XIX., XX., the lives of both mother and child were saved. In Cases XV. and XVI., the mothers recovered. In Cases XIV. and XVII., the mothers recovered, the children being dead. Cases IX. and XXI. were the only instances in which death occurred after vaginal hysterotomy. In one of these it was delayed until after the patient had sunk into a state of extreme prostration, and in the other until after a great many hours had elapsed. True, in some of the successful cases, symptoms of exhaustion had begun to manifest themselves, but the importaat lesson taught us is, that in almost every instance of occlusion of the womb, when let alone, nature proves incompetent to complete delivery; and that an artificial opening must be created. In Case I., she succeeded in lacerating the adhesions which had agglutinated the sides of the os, but she could go no farther, and the uterus being fatigued out, the fœtus required to be removed by the forceps. A resort to depletory measures has usually been advised, previous to the operation; but the case is widely different from that of a rigid, yet patent undilated os. Furthermore, since laceration of the parts must take place in order to delivery, incisions should, in all such cases be preferred, since it may "perhaps be fairly assumed that the risk of unlimited laceration of the uterus and adjacent parts is much less, when incisions of tolerable extent have been discreetly made, than where merely a diminutive central aperture has been formed." (*Ashwell.*)

To Prof. Bedford of the University of New York, is, we believe, due the credit of having first performed the operation of vaginal hysterotomy, in this country, for entire occlusion of the os uteri. In both instances, he had the gratification of saving the lives of both mother and child.

The operation is usually performed with a bistoury or scalpel, taking the finger as a guide. In Case II., the incision was crucial. In Case V., it was made in a line between the bladder and rectum, to avoid the arteries of the side of the neck. In Cases XIX., XX., it was bi-lateral. In Case II., it stated that there was no hemorrhage or pain; in Case V., there was no "suffering."

II. *Cases of Partial Closure of the Os Uteri.*

Case XXII. (A continuation of Case V.)—In her second confinement was taken in strong labour early in the morning of January 2d. The pains were most powerful, and by noon there was an opening into the uterus, through which the head could be felt, which had not dilated. Half a drachm of laudanum was given without effect. At 2, P. M., the opening was irregular, rather less than a penny in area, and bounded anteriorly by a strong, firm, unyielding, rigid edge—the cicatrix of former incision, upon which the head was forcibly impelled. There was no trace of cervix. At 6 P. M., no dilatation, pulse quick, skin hot, vagina becoming hot and dry. The stricture was divided, with almost no hemorrhage, and without pain. Pains lulled and she was faint; brandy and water was given her. In three-fourths of an hour there was an additional rent, and delivery soon took place. Child asphyxiated, but restored. Recovered in three weeks.—*Mr. Tweedie, Guy's Hosp. Reps.*, vol. iv. p. 119.

Case XXIII.—Ætat. 31. Had extremely rigid os which, after waiting twenty-six hours, was dilated by the finger—which process required two hours. She died of peritonitis, and the whole cervix, the lower part of the body of the uterus, with the vagina, were gangrenous.—*Dr. Ashwell, Ibid.*, p. 141.

Case XXIV.—First labour—eighth month. The os was about the size of a half-crown, but rigid and very thin. After continued efforts at dilatation the os was snipped; the parts gave way—there was much flooding, and she died on the fourth day.—*Smellie's Works*, vol. iii. p. 55.

Case XXV.—Repeated and powerful attempts were made to dilate the os, and flooding and fainting were the result. Another attempt was then made, the os feeling as if it were two inches thick. She died in convulsions, undelivered.—*Ibid.*

Case XXVI.—A healthy country-woman, ætat. 35. A very small orifice was found, from which there issued a brown mucous fluid. Various attempts were made at dilatation and delivery. After two days of protracted suffering, she died undelivered, with ruptured womb.—*Guy's Hosp. Reps.*, vol. iv. p. 143, from *Naegele's Thesis.*

Case XXVII.—First pregnancy—strong and robust—ætat. 28. Labour began on the 24th, when the membranes broke. On the 27th the os was hard and callous. Vapour baths and opiate ointments were employed until the 28th, when an incision of one and a half inches was made in the anterior lip. Delivery was completed by the forceps, during which the os was not torn any farther. The child was dead. She had a favourable recovery. —*Dr. Burdach, Medicinische Zeitung*, 1837. See *Brit. and For. Rev.*, vol. vi. p. 235.

Case XXVIII.—A young girl. On the 6th pains came on and lasted all day; the membranes burst in the evening. The cervix was then thick and rigid, and the os equalled two centimetres. Next morning it was discovered to be a face presentation. At 1½ o'clock, P. M., the labour had not advanced. The patient was exhausted, and the os was incised on the right side, which produced slight relaxation. An incision on the left side was followed by copious hemorrhage. Forceps were tried, and also the lever, and failed. It was necessary to plug the vagina. At the end of half an hour the plug was removed, the os was dilated, and the labour was finished by the forceps. She recovered soon. The placenta was supposed to be partly over the cervix.—*M. Labordie*, in the *Practice of M. Dubois*, *Encyclograph. Méd.*, April 1846. See *N. Y. Journ. Med.*, &c., 1846.

Case XXIX.—M. Caignon was called at 11 P. M. She was suffering from pains from fever, and was much exhausted. A tumour was felt posterior to the vagina, which was supposed to be the head. The os was partially dilated, and discharging decidua and fetid blood, and was turned toward the pubis. There were symptoms of severe peritonitis. Venesection, &c. were practiced. Next day, vaginal hysterotomy was proposed. *Two days* afterward an incision was made, to expose the fœtal head. The cyst contracted and a pain came on—a living fœtus was extracted—there was no hemorrhage. Died next day from exhaustion.

Post-mortem.—Left ovary softened and adherent to the cyst, and this was adherent to the uterus.—*Arch. Gén.*, Oct. 1830, from *N. Amer. Med. and Surg. Journ.*, vol. ix.

Case XXX.—Ætat. 36; extremely emaciated and debilitated. Hemorrhage and very fetid discharges from the vagina, from the fifth month. Movements of the fœtus were very painful whenever it struck the parts within the pelvis. The os was two inches in diameter, and at least one inch thick. The pains were very violent—venesection—natural birth.—*Phil. Med. and Phys. Journ.*, vol i. p. 386, *Dr. Sharpless.*

Case XXXI.—Ætat. 40 years. Had strong convulsions at the time of *accouchement*, which lasted two days. She was alarmingly prostrated

The os was of the size of a piece of six livres, and could not be dilated. Hysterotomy was the only resource. Hardly had the incision been made before delivery took place spontaneously, and though apparently on the point of expiring, she rallied and recovered. The child was dead.—*Dubosc of Toulouse:* see *Dict. des Sci. Méd.*, vol. xxiii. p. 297.

Cases XXXII., XXXIII.—Ætat. 26 or 27. She had been subjected to an operation at the age of 19, for artificial vagina, and just previous to marrirge, five years before, the os was patent, yet small, admitting the end of the finger but totally unlike a natural os. During parturition this did not dilate, and was therefore incised in four directions; the head was perforated, and labour terminated without laceration—recovery was difficult and protracted. In a second labour, a year and a half after this, the os was again too small. It was again incised, and the head delivered by the forceps—the child was born alive. In neither labour did the os equal a sixpence in size, and in both the uterus was forced down external to the vulva so as to be in sight. She had three *natural* labours afterward.—*Mr. Butler*, by *Dr. Ashwell, Lond. Med. Gaz.*, vol. xx. p. 589.

Case XXXIV.—See Case XCVI. of our series in the January number of this journal. The fœtus was forced through the posterior part of the uterus into the rectum and expelled from the anus. The os was a firm cartilaginous ring. She recovered.

Cases XXXV., XXXVI., XXXVII., XXXVIII.—See Cases CVI., CVII., CVIIII., CIX., of same series. The cervix was wholly or in part torn off by the violence of the pains. All recovered.

Case XXXIX.—See Case CCVIII. of same series. Neck almost scirrhous—rent at posterior and lateral part of the womb. Died soon.

Case XL.—See case CCLVIII. of same series. The whole os uteri burst off. Died in eleven days.

Case XLI.—Large and fleshy; third labour; two previous labours very severe. When in labour one and a half hours, the os was quite near the vulva, with thin edges, about the size of a dollar, perfectly unyielding, and apparently a cicatrix anteriorly, extending upwards and outwards. 1 gr. of tart. emet. was given and repeated twice at intervals of fifteen minutes, producing only nausea. She had already flowed considerably. When in labour about two hours and a quarter, the head, covered by the uterus, was forced through the outlet and pressed upon the vulva, so as to be distinctly visible. There was imminent risk of laceration. The posterior part was incised to the depth of an eighth of an inch. The wound instantly enlarged itself, and in about three-fourths of an hour the child was born alive. She recovered.—*Dr. Buckminster, Am. Journ. Med. Sci.*, Oct. 1847.

The *causes* of *partial*, like those of *complete* closure of the os uteri, are, inflammation from injuries received during previous deliveries or from other mechanical causes, and also organic disease.

Rigidity of the *os* is met with in every degree, from the not uncommon rigidity associated with firm fibre, to that depending on alteration of structure. It is not our purpose now to discuss the subject of ordinary rigidity of the os uteri. Ample directions for our conduct are found in most of the text books on midwifery, and it is but rarely that a case is met with that does not yield to the combined effects of venesection, tartar emetic and opium. Our object is to consider the proper treatment of cases which do not yield to these measures; whether the rigidity be due to a seeming indisposition in the structures to dilate, or to morbid changes, the result of inflammation, or to malignant disease of the cervix.

There may be no indication of organic change, and yet the os surrounded by a substance entirely undilatable. Thus in one of F. Ramsbotham's cases in a second labour—the first having been entirely favourable—the pains were exceedingly violent, and after a labour of fifty hours, the os equalled only a shilling in size. At this time, during a careful examination by the finger, the os was rent and she died on the fourth day of inflammation of the womb. When we have met with a case of obstinate rigidity of the os uteri, which has not yielded to a judicious trial of the agents ordinarily employed, what course is to be pursued? We have but three to choose from, viz: abandonment to nature, artificial dilatation, and incision.

The results of an *abandonment to nature* are the same as when the os is completely obliterated. In patients XXVI. and XXXIX. the patients died undelivered, from rupture of the womb. In Case XXXIV. there was laceration of the posterior wall of the womb, and of the rectum, and expulsion of the fœtus per anum. In cases XXXV., XXXVI., XXXVII., XXXVIII., the cervix was wholly or in part torn off—the patients recovering. In case XL. the whole os was torn off and the patient died. F. Ramsbotham relates a case in which the os uteri had entirely sloughed off, in consequence of the strong pressure to which it had been exposed for a great length of time.

Cases XXIII., XXIV., XXV., XXVI., afford no encouragement for the trial of artificial dilatation. Its adoption in each of these led to disastrous results, and so far as we are acquainted, the whole weight of obstetrical authority is against a resort to it. Our only resource, then, is a section of the rigid os.

To determine the proper time for the performance of this operation is probably more difficult than when complete obliteration of the os exists. In the latter case, the knowledge that an opening must be made by nature or art, and the conviction that art can make one with more discretion as regards the time, place and extent, will induce one to resort to it early and avoid the risks attendant upon delay. But in obstinate rigidity of the os, especially when unaccompanied by any distinct organic lesion, it may be more difficult to determine the proper time for interference. The duration and character of the labour, condition of the patient, both local and general, must all be considered; hence the responsibility of each case must in an eminent degree rest with the attendant.

We shall see by Cases XXII., XXVII., XXVIII., XXXI., XXXII., XXXIII., XLI., that the operation, when resorted to in season, is attended by the most favourable results. The incision, so far from leading to more extensive and dangerous lacerations, under the continuance of pains, in none of these instances encroached on the peritoneal cavity; and being made in the most favourable directions, lead to no injury of the adjacent organs. The operation was, in the instances in which this point is alluded to, almost free from pain and loss of blood. In the only fatal instance we have found, the operation was resorted to *three days* after the patient was found "suffering from pains and fever and much exhausted." In some of the successful cases, the operation was deferred until symptoms of exhaustion began to manifest themselves, but they nevertheless rallied.

Bearing in mind the danger incurred by the patient, of rupture of the body of the womb, of unlimited laceration of the cervix, and, it may be of sloughing, that may follow long-continued pressure; and, considering that the risk attendant upon judicious incisions is very little, are we not encouraged to an early, rather than a deferred, resort to a section of the neck? In the measures usually adopted there is often no inconsiderable risk. Blood-letting, to produce any effect must be liberal, and we know that many constitutions do not well bear the loss of blood. Where the patient is robust, and the fibre firm, general depletion and nauseants, by producing relaxation of the general system may diminish local rigidity. But in the delicate and anæmic, venesection to any considerable extent could not be borne, and in such, a division of the parts must be made at an early period.

We think it may be fairly questioned, whether, after a moderate blood-letting and the use of tartar emetic, in case the rigidity does not yield, and any structural lesion can be detected, we ought to wait until symptoms of approaching exhaustion appear. Should not the occurrence of local heat and dryness, or of constitutional sympathy, be a signal for extending help? In Case XL. the woman had been in labour less than three hours, the vagina, &c., but a little while before, at least, were perfectly moist and distensible, and yet the incision was undoubtedly made at just the right time.

Since a spontaneous laceration of the rigid parts is the best that can be expected after a judicious use of relaxant measures has failed, what is to be gained by waiting until the patient is in a state of hopeless prostration before the knife is used? Our cases are too few to furnish statistics, of authority on this point, but they decidedly favour an early resort to division. There is a chance of safe delivery if left alone; but this chance is so much less than that after an early incision, that we would not feel justified in waiting long after a prudent trial of relaxants.

When obstruction of the os arises from malignant disease, it would appear that a resort to division is justifiable, earlier than in the cases we have been considering. Laceration is almost certain to take place, unless an incision be made, and much suffering endured, when the greater portion of the circumference is implicated, or the disease far advanced. It would be interesting to learn the influence of an incision on the subsequent progress of the disease, when the operation is performed on it in its early stages. Whatever it may be, an incision will, in almost every instance, be necessary to secure the life of the child, and probably of the mother.

In the proceedings of the *Royal Med. and Chirurg. Society*, J. M. Arnott, Esq. reports a case in which the morbid growth occupied the anterior lip and right side of the womb, and equalled a large green walnut in size. The diseased mass and contracted os uteri were forced down almost into view, when a pain came on; hooks were fixed in the tumour, which was excised by a succession of strokes with curved scissors, and scarce any blood lost. The os immediately dilated, and in a quarter of an hour a living child was born. The mother recovered, and was well for several months. She died sixteen months after confinement, of the disease.—See *Lond. Med. Gaz.*, Dec. 1847, p. 1068.

According to Jacquemier, tom. ii. p. 176, of twenty-seven cases collected by M. Puchelt, five died during labour, nine a short time after confinement, ten recovered from confinement, and of the rest the result is unknown. Fifteen of the children were dead and ten living.

III. *Cases of Occlusion and Contraction of the Vagina.*

Case XLII.—This patient had laceration of the bladder and vagina in severe labour, and in consequence, almost complete obliteration of the vagina. Eight years afterward, it presented in labour, a firm cicatrix, two inches from the orifice of the vagina, with a small perforation leading to the womb, the vagina beyond being perfectly healthy. After some delay, the stricture was divided in several places—the head descended—the pelvis being small, the head was perforated. During delivery the bladder and vagina were rent again, but healed afterward.—*Prof. McNaughten, N. York Med. and Phys. Journ.*, No. xxiv., 1827.

Case XLIII.—The vagina was completely obliterated—four fingers breadth. An incision was made in its course, following a fistulous passage from the vulva to the uterus. The urethra was wanting—the child was expelled.—*Lond. Lancet*, 1827–8, vol. i. p. 385, from *Arch. Gén.*, Oct. 1827.

Case XLIV.—Called to a primipara, in labour from one evening to the next. The head was far down, resisted by a thick vertical septum running from the recto-vaginal to the urethro-vaginal septum, around which the finger could be passed in and brought out. Ergot was given. The septum formed a band over the head, grew thinner, and snapped like a whip. —*Lond. and Edin. Monthly*, 1844, p. 801, from *L'Expérience*, April 1844.

Case XLV.—Robust, ætat. 26; second labour. There was complete obstruction of the vagina a little above the mouth of the urethra, by a dense, striated membrane; the striæ radiating from the centre, as tense cords. An orifice admitted a common probe. The pains were expulsive for several hours. At noon, a crucial incision was made through the membrane, which was thick, and tough, like tendon. At night, the head pressing on the perineum, and the soft parts being unyielding, the forceps were tried, and failed. Perforation was required; the head and shoulders offered great resistance; child unusually large: had a favourable recovery. She had been much injured in a previous labour.—*M. Davizac*, in *N. Orleans Med. Journ.*, March, 1845, p. 431.

Case XLVI.—Third child. A membranous septum existed, across the vagina. In its centre was a small aperture admitting a small probe, through which the liquor amnii was discharged. This membrane was divided, and the patient safely delivered. The previous labour had been tedious.—*Dr. Richardson, Transylvania Journ. Med.*, 1829, in *Amer. Journ. Med. Sci.*, vol. iv.

Case XLVII.—Mother of four. She had injected sulphuric acid into the vagina, to procure abortion. Severe inflammation followed, and obliteration of the upper two-thirds of the vagina. She went to the full time. After thirty-six hours' labour, an unsuccessful attempt was made to open a passage by the knife, and she died. The womb was rent for four or five inches on the left side. *M. Lombard, Rev. Méd.*, April, 1831. See *Amer. Journ. Med. Sci.*, vol. iv.

Case XLVIII.—Ætat. 23. Her previous labour was severe. A stricture was now observed two and a-half inches within the vagina, and completely encircling it. It could be dilated to the size of a dollar; pains regular; ergot was given, and they became very violent; was bled largely to no purpose. The stricture was divided upwards and outwards; a dose of morphine given, and she rested during the night. Ergot was given in the morning, and she was delivered after a few hours of severe labour. Subsequently had loss of control of the bladder and bowels.—*Dr. Williams, Amer. Journ. Med. Sci.*, vol. xi.

Case XLIX.—Ætat. 27. Had a very difficult labour two years before, followed by inflammation, and by closure of the yagina, which admitted only a goose quill. During labour, this membrane opposed the progress of the head. After six hours, the margin was divided for an inch on the left side, and at the end of an hour, one on the right side. The waters were black and offensive. She became faint, and the pains infrequent. She was safely delivered by forceps, of a living child. In her recovery, care was taken to prevent the formation of new adhesions.—*Dr. Hoillermein, Amer. Journ. Med. Sci.*, vol. xv. p. 407.

Case L.—A contraction of the vagina, in consequence of a violent labour, which scarcely admitted the point of the finger, it being a thick, indurated cicatrix, and a callosity of the perineum that prevented her sitting down. After the first stage of labour, forty ounces of blood were taken, and she was safely delivered.—*Dr. Hamilton's Pract. Observations; Appendix.*

Case LI.—Had a violent labour, followed by vaginitis, &c. In labour, five years afterward, a callous cicatrix, of the thickness of the finger, narrowed the pelvic outlet so as not to admit a half crown. After trial with a crotchet, the cicatrix was divided, and delivery was speedily accomplished, but the patient died.—*Ibid.*

Case LII.—Ætat. 28. The first labour was very tedious, and she had a narrow recovery. The head was detained at the perineum for two hours, without advancing, the pains being strong and frequent, by a strong callous band, across the vagina. This was divided, and she was delivered in a few minutes of a living child. The incision caused no pain, and but a drop or two of blood was lost. She recovered favourably.—*Ibid.*

Case LIII.—Second child. She had been bled ℥xii., for rigidity of the os, and heat of the os and vagina. Under strong pains, the head descended enveloped in the uterus, and on reaching the os externum was thrown to the right side by a firm cicatrix, resulting from laceration in a previous labour. After six more pains, there being no relaxation of the cicatrix, the head advancing, and the os thrown toward the sacrum, she was placed on her feet, and bled "upwards of two quarts," until she fainted. She was safely delivered by forceps, a half hour afterward, of a living child, and recovered rapidly.—*Dewees' Midwifery.*

Case LIV.—When in labour sixteen hours, the pains being strong, the os externum scarcely admitting the finger, was close to the pubis, and distended. A bridle ran from the pubis to the perineum, opposing the passage of the head. Tobacco injections were twice tried, to no purpose. The bridle was then divided without apparent good. She was placed on her feet and bled, she became faint in the loss of ℥x. of blood; there was complete relaxation, and she was speedily delivered by forceps of a living child. Died on the sixth day, of cholera morbus.—*Ibid.*

Case LV.—Second child. When twelve or fourteen hours in labour, the head distending the perineum, the os externum was no larger than a finger ring, and thrown close up to the pubis. A cicatrix ran down to the verge of the anus. Strong pains for several hours, produced no impression upon it. She was strong and healthy; the pulse now strong, frequent, and hard. She was bled to ℥xl with some benefit. She was then placed erect, and ℥xxv to ℥xxx more taken. She fainted, and was soon delivered of a healthy child by forceps. She recovered well, and was delivered three years afterwards in the same way.—*Ibid.*

Case LVI.—Ætat. 43. A circular contraction from a previous labour. It was not divided, "for fear of increased laceration on the passage of the head." Forceps were applied, and a living child delivered, "apparently without much injury to the vagina."—*J. Ramsbotham's Midwifery*, p. 269.

Case LVII.—The *os externum* was a small opening, scarcely admitting the finger, the contraction having been caused by inflammation, after tedious labour. The head threatened to pass through the anus. When in labour about two days, the parts were divided in front and behind. The head was perforated, and she recovered well.—*Ibid.*, p. 315.

Case LVIII.—Second labour. The first was very protracted and instrumental. A circular cicatrix at the upper part of the vagina yielded a little, but another of a gristly nature surrounded the *os externum*, barely admitting the finger. The pains though powerful, were fruitless. The stricture was divided, and a living child delivered by the long forceps. Recovery was rapid and perfect.—*Ingleby's Obstet. Med.*, p. 115.

Case LIX.—In her first labour she was delivered by forceps, and was supposed to have recovered. During pregnancy, the vagina was found to be nearly closed. At full term (Thursday night), after some hours, the *os externum* barely admitted the fore-finger, and within it, the vagina was closed by a membrane, which admitted only a probe. Through this foramen the waters were dribbling. Active pains ensued, on Saturday morning, the membrane was divided, and the arm felt in the vagina. The os externum was freely incised; much blood was lost, and she was delivered by version of a living child. She recovered well.—*Ibid.*

Case LX.—Was delivered by forceps, after a difficult labour; a stricture was found far up the vagina. It gave way under strong pains, and delivery was natural.—*Ibid.*

Case LXI.—A healthy young woman. When labour had fairly set in, no os could be found, and the vagina was scarce two inches in depth. An opiate was given, and rest procured for some hours. An incision was then made toward the cervix, the os reached, and in two hours she was safely delivered. During childhood, the vagina had cohered above, leaving a passage for the menses, which, after impregnation, closed up.—*Dr. Hamilton.* See *Guy's Hosp. Reps.*, vol. iv. p. 123.

Case LXII.—(See case CLXII. of Cases of Rupture.) Firm bands obstructed the vagina—delivery natural after three days—*died.* A *rent* was found in the vagina, opposite the sacral promontory.

Case LXIII.—(See case CLXX. of same series.) A firm band obstructed the vagina—the bands were divided—rupture took place in the recto-vaginal septum, in an old cicatrix, four hours afterward.*

Case LXIV.—Ætat. 28; robust; had had two children, the first stillborn after severe labour, the second at the seventh month after an easy labour. Labour came on April 2d but went off entirely. It came on again on the 5th, at 2 A. M. On the 6th the womb ruptured, and she died on the 8th.

Post-mortem.—The womb was ruptured in front, transversely, just above the vagina. Vagina almost completely closed by a septum a half inch thick, and of very firm texture, with a small orifice, through which a quill of small size might be forced.—*Reported by Dr. Brainard*, in *Illinois Med. and Surg. Journ.*, May 1844. See *Meigs' Translat. of Colombat.*

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* For a case of complete procidentia of the gravid uterus in parturition, treated by incision of the vagina, see *Brit. and For. Med. Rev.*, vol. vi. p. 235, from *Dr. Burdach*, in *Medicinische Zeitung*, 1837.

For a case of absence of external organs and delivery through an incision. in the direction of the vagina, see *Lond. Lancet*, 1827–8, vol. i. p. 385, from *Arch. Gén.*, October 1827.

For another case of obstructed vagina, of which the result is not stated, see *Arch. Gén.*, vol. xv. p. 268.

Case LXV.—Ætat. 16 years; had congenital narrowness of the vagina, which would not admit a goose-quill. After eleven years, she conceived, at the fifth month. The vagina began to dilate, and continued to do so till she was brought to bed and safely delivered.—*Boyer*, in *Méms. de l'Acad. des Sci.*, 1774, in *Colombat*, p. 99.

Case LXVI.—Vagina so narrow as scarce to admit a quill. She became pregnant, and after three hours' labour gave birth to a large healthy child. The vagina dilated in one night.—*Ibid.*

Case LXVII.—Vagina found narrow, so as scarce to admit a quill. She was safely delivered.—From *Brazilian Med. Rev.*, in *Lancette Francaise, Gaz. des Hôpitaux*, in *Colombat*, p. 99.

Case LXVIII.—Ætat. 35, fourth confinement; full time. Called at 4 P. M. Waters escaped on the previous morning, and the pains commenced an hour after. Had procidentia uteri for a year, two or three inches being external. Cervix two or three inches without the vulva; firm, corrugated, and dry. At 4 A. M. next day, forceps applied, but the procidentia greatly increasing, were withdrawn, the tumour being eight inches long, and five in diameter. Soon after made an incision one and a half inches, and increased it one inch. Parts rent one and a half inches farther; child born alive; hemorrhage slight; substance of the cervix cartilaginous. Recovered.—*Amer. Jour. Med. Sci.*, Oct. 1846, *Dr. A. K. Gardner.*

Severe labour was the cause of most of the instances of contracted and obliterated vagina. It is distinctly stated in Cases XLII., XLV., XLVI., XLVIII., XLIX., L., LI., LII., LIII., LVI., LVII., LVIII., LIX., LX., LXIV., while it was probably the cause in some others. In Case XLVII. it arose from attempts to procure abortion; in Case LXI. from vaginitis during childhood; Case XLIV. was also a primipara; and, in Case LXV., the narrowness was congenital. In *Arch. Gén.*, vol. xviii. p. 471, Lisfranc reports a case of complete occlusion of the vagina, from neglected venereal ulcers.

Of those in which there was no active interference, in Cases XLIV. and LX. the obstructing bands were rent by force of the pains; in Cases LXV., LXVI., LXVII., the vagina dilated; and, in Case LVI., the patient was delivered by forceps. These all recovered. Cases L., LI., LIV., LV., yielded to venesection. Cases XLVII., LXII., LXIV., were let alone, and they died, as also Case XLVII., in which some attempt had been made to open the passage, but unsuccessfully, and rupture of the womb ensued. So that of the eight cases abandoned to nature, three were fatal.

Cases XLII., XLV., XLVI., XLVIII., XLIX., LI., LII., LVII., LVIII., LIX., LXI., in all twelve, recovered after incision of the obstructing membranes and tissues. Case LXIII. is the only instance of death after a division of the obstacle, and in this case the rupture that caused the death occurred in an old cicatrix. The *four* cases attended by rupture of the uterus or vagina, show that that fearful accident is to be seriously apprehended when the impediment to delivery is allowed to continue.

If rupture of the womb is to be feared under the action of ordinary contractions, it certainly follows that the administration of ergot, with a view to overcome the obstacle by increased violence of the pains, is to be carefully avoided as hazardous in the extreme.

We have seen that in every instance but one, in which the stricture was divided, the woman recovered, while in several in which it was neglected, rupture of the womb or fatal exhaustion followed. Cases LXIV., LXV., LXVI., are remarkable exceptions, inasmuch as extreme contraction disappeared during labour and the delivery was natural. They show us what may, by possibility, happen; and yet the history of the other cases indicates that these are exceptions to a general rule.

Our cases show that while abandonment to nature is attended by great risks, division of the stricture by the knife is almost perfectly safe. Certain it is, that when the patient has been suffering during hours of agony, without any advance of the head, the artificial division, or spontaneous laceration of the opposing bands or cicatrices, has permitted almost immediate delivery.

Dewees recommends large abstractions of blood, and relates three instances in which it apparently proved successful. Hamilton also relates one, in which he practised the same. A truly formidable depletion was required in one at least, of Dewees', such as could not fail to peril the safety of almost any woman. We know of no other author who has recommended blood-letting to a similar extent.

The general safety of incisions, with the risk of dangerous laceration if left alone, must certainly encourage an early resort to the operation. It involves no important organs, is easy of performance, is attended by little pain, and almost always by only a trifling degree of hemorrhage, and is to be performed upon parts that must probably undergo spontaneous laceration before labour is completed.

These considerations point to the propriety of dividing the opposing structures, after a fair trial of relaxants, and before the powers of life have begun to yield from exhaustion, or the soft parts to suffer from long-continued pressure.

Dr. Ingleby advises that the incisions should be made during a pain. During convalescence, after a division of the stricture, the parts have a tendency to reunite, and this should be guarded against by appropriate management. So great is the risk of partial obliteration of the vagina from inflammation after severe labour, that Dr. Ingleby recommends an examination of the vagina in all instances of really difficult labour, within a month after delivery.

Art. IX.—*Operation for Artificial Anus.* By J. Mason Warren, M. D., one of the Surgeons to the Massachusetts Gen. Hospital.

Artificial anus is an affection generally caused by the sloughing of the intestine in strangulated hernia, although occasionally, the result of abscess and penetrating wounds. Sometimes a small portion only of the calibre of the intestine is destroyed, the bowel becomes attached to the parietes of the abdomen, and a fistulous opening is the result, usually amenable to the ordinary method of treatment. At other times a whole loop of the bowel sloughs off, and both ends of the intestine unite to the abdominal walls, leaving an opening from which the feces are constantly discharged, and only to be remedied by surgical means.

Cases of the latter character are of unusual occurrence, and the means for their strictly scientific treatment by surgical operation, have not, until within a few years, been fully established. The one I intend to relate is, I believe, the only instance successfully operated upon after the method of Dupuytren, in this part of the country, so far, at least, as my medical experience extends.

A patient with this affliction is one that may fully claim the sympathies of those called upon to administer to, and alleviate human suffering. Generally suspended, in the full possession of his mental faculties, between life and death, he is destined, unless relieved, to drag out a miserable existence, an object of disgust to himself and a burden to his friends, or to sink worn out by pain, and the emaciation produced by deficient nutrition. Great satisfaction must therefore be felt by the surgeon, if he can be the means of relieving so distressing a misfortune.

The patient with artificial anus, of whose case I propose to give an account, was sent to me by Dr. Brown, of Nova Scotia, in June, 1847. She was thirty-four years old, the mother of six children, and previous to the occurrence of the present accident, of good constitution. A small crural hernia had existed on the right side for an indefinite period of time.

Dr. Brown was called to her fourteen months previously, and found her labouring under a strangulated hernia of forty-eight hours' duration. An operation was immediately performed, but on opening the sac, the intestine was exposed in a gangrenous state. The stricture was therefore divided, and the intestine left in the wound. At the end of a week the sphacelated portion separated, and the feces flowed freely through the opening. After some time she partially regained her health, was able to sit up, and finally to work moderately, until the following September, when abscesses began to form in different parts of the thigh. From this period she gradually lost her flesh, and declined in strength. Two of the abscesses were opened by the lancet; the others, on the under surface of the limb, opened and discharged spontaneously. Pus at first issued, followed by fecal matter, and great suffering attended the effusion of the latter into the soft parts. Until within a few weeks previous to her coming under my care, there were occasional fecal discharges per anum, but the greater proportion of matter was evacuated through the various fistulous openings.

The patient arrived in town in the early part of June, 1847, just after my term of service had expired at the hospital, but through the politeness of Dr. Townsend, who was then in attendance at that institution, she was placed under my charge. Her condition at that time was as follows:

She was extremely weak and emaciated; the countenance pale, nearly exsanguineous, indicating the almost total failure of the assimilating process. From long confinement she had become nervous and timorous, hardly allowing the slightest examination. And on the day subsequent to her entrance, she was so completely homesick, that notwithstanding the great trouble and expense undergone by her physician and friends to enable her to accomplish her journey to Boston, she insisted on returning home at once by the same vessel in which she came. After a day or two of consideration, however, and by a little persuasion, she was induced to change her mind on this point.

The position of the patient was almost entirely on her back. The feces in a very liquid state were constantly running out through two openings in the groin and three in the posterior part of the thigh. The right limb was drawn up almost to a right angle with the body, and the whole thigh much enlarged and hardened. The skin around the openings in the groin, had a red irritated look, was thickened almost to callosity, and excoriated. The openings were quite small, so as hardly to admit an instrument larger than a common director.

A nourishing diet was allowed and great cleanliness of the wounds enjoined, with the more especial object of preventing the painful excoriations.

The situation of the intestine could not at first be determined, which added to the embarrassment of the case. In those of a similar nature, which I had an opportunity of seeing abroad under the care of Dupuytren, the intestine opened on the surface of the abdomen by a large aperture, and there was no difficulty in exploring at once, the ends of the bowel with the finger, or by instruments. In the present instance the fistulous openings ran in every direction; those in the groin were immediately in the neighbourhood of the probable orifice of the artificial anus, allowing a probe to penetrate for its entire length.

I therefore determined to dilate the two latter openings, which was done very gradually by sponge-tents, on account of the sensitiveness of the patient to any manipulations, and it required the persevering application of this method for a month, before the two ends of the intestine could be with certainty distinguished. This, however, was finally accomplished, and a gum-elastic bougie passed into the upper and another into the lower orifices of the intestine. The bougie first penetrated through a thick callous mass of integument, then through the muscular or tendinous covering of the abdomen, in all about an inch in depth, when the septum or spur, as it has been called, which separates the two ends, was encountered and with difficulty entered, being so closely applied to the parietes of the abdomen as to prevent the least passage of matter from the upper into the lower part of the bowel. There had not been in fact, for two months, the slightest fecal discharge per anum. The intestinal ends seemed to lie parallel to each other, so that the bougies introduced for exploring made but a very slight angle. The patient still remained nervous and quite feeble.

I directed that the sponge-tents should be continued; also that a pint of oatmeal gruel should be given, per anum, daily, for the purpose, both of stimulating the intestinal coats to the performance of their natural functions, and with the object of enlarging the calibre of the bowel, which must have become much contracted from long disease.

On the following day I found that some scybalæ had come away with the enema; and, on the next day, the injected fluid made its appearance at the apertures in the groin.

In the course of a few days the principal opening had become so dilated, that by a steady and patiently applied force, I could insinuate the little finger quite down to the intestine. The septum could now be distinctly felt lying against the wall of the abdomen, and be hooked up, so as to permit the end of the finger to be carried into the lower portion. The sensation of the valve was that of a delicate membrane, like the coronary valves of the aorta, though somewhat more resisting. A director was now carried down at the side of the finger for the purpose of keeping the valve open, a gum-elastic catheter passed in, and a quantity of warm water injected, to make sure that the lower orifice had been found. This water afterwards appeared, and was discharged per vias naturales.

The patient being well prepared, I determined to apply the enterotome, which was done July 12th. Having made sure of the lower opening by a director, as on the day previous, the male branch of Dupuytren's enterotome was carried into the lower intestine; the director was then withdrawn, and the female branch introduced with ease into the upper. The two parts of the instrument now occupied nearly the whole calibre of the dilated passage leading to the gut. It was necessary particularly to separate and lock them. This I found at once to be impossible, for the jaws of the female portion would not allow of sufficient motion at the hinge to lock with the other part of the instrument. If the intestine had opened directly on the abdominal surface, there would have been no difficulty, but the locking of the forceps under the existing circumstances was impracticable.

I therefore withdrew the instrument, and had recourse to another, which has since proved much better than the enterotome of Dupuytren. This instrument was about six inches in length; the handle was constructed with a screw-vice, and the joint with a movable pivot, as in that of Dupuytren: the blades, however, were different. In the place of one blade being received into a groove in the other, they were serrated, like the polypus forceps, for the space of three inches. The whole instrument was four inches and a half long, or about two inches shorter than that of Dupuytren. The blades being introduced in the manner already described were locked without difficulty, and at once brought together as tightly as the screw would permit.

On the next day I found her quite free from pain. She had complained a little for a few hours after the instrument had been put in place, but there was a question whether this might not have arisen from fear.

The fecal matters passed by the side of the instrument, and warm water was daily injected into the wound, to prevent any obstruction. She had also an enema daily, which kept the lower bowel in action.

On July 15th, three days after its application, the instrument came away. In the jaws of the forceps, and bearing the impress of the teeth, was a blackish slough, two inches and a half long, four lines wide, and about three thick. The finger, passed into the orifice, could distinguish an opening between the two ends of the intestine, corresponding in size to the slough, the edges of which were greatly thickened and fleshy, imparting a sensation entirely unlike the delicate valvular one of a few days previous.

This examination was conducted with the greatest delicacy, from fear of destroying the adhesions, which must have been, of course, at this early period, of the slightest kind.

In the afternoon she had a small fecal discharge through the wound. She complained of no pain, and there was no tenderness of the abdomen.

On the following day, the 16th, she was quite comfortable, had had a free dejection per anum from an enema, more slimy in its character than usual. There had been no discharge from the wound since the day before. A gentle compression was made by means of a compress and bandage on the openings in the groin, and the orifices ordered to be touched daily with the nitrate of silver.

The patient improved in health, rapidly acquired her strength, and there was no farther discharge at the artificial anus from the day of the separation of the instrument until she left the hospital, at which time the openings in the groin had almost completely cicatrized.

On July 29th, being very eager to return home, she was discharged from the institution at her own request, but against my wishes, as I was anxious to watch the progress of the case to its very close.

From a desire to learn the final result of this case, I have lately addressed a letter to Dr. Brown, of Horton, N. S., her physician, and received a reply bearing date May 5th, 1848. In his answer this gentleman informed me, that immediately upon her return my patient was greatly improved both in health and spirits, the feces had their natural exit, and everything looked very promising. In a short time, however, owing to over-indulgence in the use of coarse, flatulent food, and the want of that general surveillance so necessary for this class of patients, fecal matters had again appeared at the old orifice, as well as at several places on the hip, some of which were fresh outlets. This was the condition of things in December, when Dr. B. was summoned to a meeting of the legislature at Halifax.

"On my return in April," writes this gentleman, "about a week ago, I was quite taken by surprise to find our patient perfectly recovered, looking as plump and gay as ever, and busily employed about her house. Being in haste, and she being busy, I did not examine her, but she informed me, that all the ulcers as well as the original outlet were entirely healed, except one new one, and that had not discharged fecal matters for some time, and was in fact, nearly healed; that the hip had greatly decreased in size, and had assumed quite a natural appearance; that her bowels were entirely regular, and she could take any kind of food without the least inconvenience. She even said, she had not enjoyed so good general health for several years previous to her misfortune, as now."

On reviewing the above case it will be perceived, that it presented difficulties of a formidable character. In the first place the extreme debility and emaciation of the patient, and her great mental depression were obstacles almost as troublesome to contend with, as the disease itself. Twice after much labour had been expended, and some progress made in the preliminary treatment, she insisted on relinquishing it at once and returning home; and on the day when the instrument was to be applied, she declared that she was certain she must die the following night, and that it was quite useless to attempt the operation. These depressed turns generally passed off after a time, and then the patient was very urgent to have the treatment continued, but for the moment they were sufficiently discouraging to the surgeon.

The numerous fistulous openings, with the effusion of fecal matter into the groin and back part of the thigh, occasioned considerable embarrassment in pursuing the treatment for discovering the end of the intestine. Added to this, and caused by it, the thighs were flexed nearly to a right angle with the body, and were constantly in the way of the instruments used for exploring the artificial openings.

The instrument used, I conceive to possess great advantages over that of Dupuytren. In fact, it consisted of, or may be almost exactly represented by a common pair of old-fashioned polypus forceps, with the branches detached and united by a movable pivot, instead of a fixed joint, the handles perforated with a screw-vice, and the jaws serrated throughout. It is less clumsy than that of Dupuytren, causes more complete strangulation, and does its work in less than half the time.* By an examination of the cases of this distinguished French surgeon, it will be found, that the enterotome generally separated about the seventh or eighth day: in the present instance it came away on the third, yet no effusion or other evil consequence resulted, although the patient was as little provided with the materials for forming plastic lymph as can well be imagined. She was in fact, almost exsanguineous.

In the relation of this case we have only mentioned the course of treatment ordinarily pursued by Dupuytren, without alluding to the methods of Physick, Gross, and others in this country, or in Europe, who have done so much to advance this branch of surgery.

A case of a similar kind to that narrated, occurred to me in an infant some years since, and, as it illustrates one of the accidents liable to take place at any moment in patients labouring under this unfortunate affection, namely, a prolapse of the ends of the bowel, the details may be here given.

I was requested by the medical attendant of the family to see an infant eight months old, and received the following history from him. He was first called to it when three weeks old: the parents stated to him, that for a few days subsequent to its birth it was in much distress, and had no alvine evacuation until the cord separated, when an exudation took place at the navel, followed by much relief. Shortly after, a small red tumour appeared at this spot, from the central portion of which the fecal evacuations occurred; there was no discharge per anum. He directed them to make use of a compress and bandage over the tumour, and under this treatment the child began to have evacuations by the anus, to gain strength and flesh. I advised that this treatment should be persevered in.

About two months subsequently, after a sudden exertion, a couple of tumours protruded from the navel, attended with some constitutional symptoms, and an entire stoppage of the evacuations. I saw the patient two days afterwards, and at once recognized a prolapsus of both ends of the intestine. The tumours lay across the abdomen, one to the right side, the other to the left; one portion, which proved to be the lower, was dark-coloured, and more contracted than the other. The second, or upper part of the bowel, was larger, covered with mucus, and the vermicular motion could be distinctly seen in it. An effort had already been made to reduce them into the abdomen, but without effect; and a proposition had been made by some physician who had seen the case to apply a ligature to the root. This was done in doubt as to the exact nature of the affection; and, in fact, the parts were so changed, that they were with difficulty distinguished as belonging to the intestinal canal.

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* I am not aware of the name of the inventor of this instrument, or whether it was constructed for the purpose for which it was employed in the former cases.

The child being cold, its pulse small, and having every appearance of rapidly sinking, I declined for the moment any operation, but advised stimulants, and agreed, if it revived, to attempt an operation on the following day for the purpose of returning the bowel.

On the next morning, the child having revived under the treatment suggested, the following operation was practised. A small neck or tunnel existed at the navel where the intestine protruded, being, in fact, the common everted orifice for the two openings of the bowel. An incision was made at this spot, being within the peritoneum, though protruded from the abdominal cavity. The two ends of the intestine as they issued, were now seized with a blunt hook, and slight traction made on them. The inverted portion gradually began to recede, and by continuing this manœuvre, at the same time using some external pressure on the tumour, it gradually returned into the interior of the abdomen. The neck of the tumour, where the incision was made, and which represented the tunnel shaped portion, was retained outside, so as to prevent the effusion of fecal matters through it into the peritoneum. Immediately on the return of the bowel, free evacuations took place from the anus, with great apparent relief. The patient, however, did not rally, but sunk, and died on the next day.

An examination after death presented no peritoneal inflammation, or effusion, and no attempt seemed to have been made by nature to close the incision of the operation, showing the low state of the vital powers at the time it was done. The upper portion, which had been returned, looked comparatively healthy: the lower was quite dark coloured, and showed the effects of the partial strangulation; an invagination of its coats for about an inch also was discerned.

Boston, May 30th, 1848.

ART. X.—*Poisoning by Arsenic Successfully Treated with Calcined Magnesia.* By EMORY BISSEL, M. D., of Norwalk, Conn.

PETER GALPIN, a labourer, aged 27, a powerful and robust young man, of intemperate habits, attempted suicide on the evening of the 4th of March last, by taking arsenic. As is often the fact, he was prompted to the deed by those horrors and remorse of conscience which so often succeed a debauch. The quantity taken, as nearly as could be determined, was not far from a scruple. When I was first apprised of the fact, two hours had elapsed from the time it was taken. I hastened the messenger who came for me as quickly back as possible, with some thirty grains of sulphate of zinc—in two doses—with directions to administer it as soon as he could reach home, on horseback—distant about one mile—to give the second parcel in ten minutes, if needful. I followed as expeditiously as I could; when I arrived he had vomited freely twice, but without any relief. The family had given him copious draughts of a weak infusion of tobacco, which produced no other effect than to increase his sufferings, which at this time were extreme; so much so, that he begged me to kill him at once, if I could not end his pain in any other way. His pulse was one hundred and thirty per minute, small and wiry. He complained of great constriction and dryness of the fauces, but chiefly of a most agonizing pain and burning in the stomach; it seeming, as he expressed it, "as if it were filled with burning coals." As nearly three hours had now elapsed, since the poison entered the stomach, I considered that any further effort to evacuate it would be futile, and that if life was saved at all, it must be by the antidotal power of some medicinal agent. Having had my attention directed to the experiments of Prof. Peter, of Transylvania University, and the case of Lepage, published in the January and April numbers of this Journal, in 1847, I determined to give the calcined magnesia a fair trial, and accordingly put it up in drachm doses, to be given every hour mixed in milk and water. During the hour which I remained with him, his symptoms were rapidly becoming more unfavourable. The pulse was one hundred and fifty per minute, the constriction and dryness of the fauces extreme, the whole surface bedewed with perspiration, the pain and burning sensation in the stomach seemed augmented to the highest possible degree, whilst the right hand was entirely paralyzed; in short, everything betokened a speedy dissolution. I left him at 10 o'clock, in charge of the mistress of the family, whom I knew to be an intelligent and faithful nurse. On visiting him the next morning, instead of finding him dead, as I much feared, I was most happily surprised to find him very quietly dozing in an easy chair. I learned from the lady, who had been unremitting in her care of him during the whole night, that in a very few minutes (not more than five or ten), after taking the first dose of magnesia, he said he felt much relieved, and before the time came for the second dose, he had fallen into a doze. She stated that each successive dose had produced the most surprising and marked mitigation of every symptom, and that long before morning he was entirely freed from suffering, and had, on the whole, passed a quiet and comfortable night. The bowels had moved freely and easily twice during the time. He complained of nothing save a general weakness, and a sort of faintness at the pit of the stomach. The right hand had recovered its power, and the pulse had fallen to eighty-five per minute. Directed to continue the magnesia, through the day, once in four hours, and to give light nourishment. On the sixth I made my third and last visit, as the young man seemed to require nothing but nursing, and a little time, for the recovery of his strength. I have since learned, that in a very few days he resumed his labour upon the farm, and felt no inconvenience from what he had taken, except a muscular weakness of the lower extremities, which was not very great. The case, in some of its aspects, much resembles that of Lepage, especially in the prompt and efficacious effects of the remedy, and the speedy recovery which followed. Should future cases yield results as gratifying as these two, we may indeed congratulate the profession in the possession of a sovereign and prompt antidote, always at hand and easily administered, to the dreadful poison by which such numbers of our race have found a terrific and agonizing death.

Norwalk, April 14th, 1848.

REVIEW.

Art. XI.—*Practical Observations on Midwifery, and the Diseases incident to the Puerperal State.* By **Alfred H. McClintock**, M. D., F. R. C. S. I., Ex-assistant of the Dublin Lying-in Hospital; Vice-President of the Dublin Obstetric Society; and Lecturer on Midwifery and the Diseases of Women and Children in the School of Medicine, Park St.: and **Samuel L. Hardy**, M. D., F. R. C. S. I., Ex-assistant of the Dublin Lying-in Hospital, and Vice-president of the Dublin Obstetric Society. "Multum restat adhuc operis, multumque restabit; nec ulli nato post mille sæcula præcludetur occasio aliquid adhuc adjiciendi."—*Seneca.* Dublin, 1848: 8vo., pp. 368.

The present work is neither a system of midwifery, nor a systematic treatise upon the pathology and therapeutics of the puerperal state; it is one of even greater value and deeper interest to the practitioner of obstetrics, who will not fail to derive from the very excellent observations it contains upon the different subjects relating to the treatment of parturition and puerperal diseases, a large amount of practical information. It is, in fact, a careful exposition of the results of the practice of the Dublin Lying-in Hospital during the three years from January 1st, 1842, to January 1st, 1845; embracing a period when, under the care of one of the most experienced masters of the institution, Dr. Johnson, six thousand six hundred and thirty-four women were delivered in its wards.

It comprises numerous, very comprehensive, and well-arranged clinical and statistical tables, presenting almost every particular of importance connected with the statistics of the natural, tedious, difficult, preternatural and complex labours, twin births and funis presentations, and of the cases of convulsions and rupture of the uterus, which occurred in the institution during the above period. These several tables are useful as well as interesting; and we have the assurance of the authors that the fullest reliance may be placed on their accuracy.

The chief value of the work, however, consists in its practical observations upon the management of the different forms of labour, and upon the nature and treatment of the accidents of parturition, and of the more prominent of the puerperal diseases. In the preparation of this portion of the work, the authors state, that their main, they might almost say, their exclusive object has been to be as *practical* as possible, avoiding all speculative or unprofitable questions, and estimating the importance of each subject solely by its claims on our attention, and the interest it possesses at the *bedside* of the patient.

The strictly clinical character of these observations, the very favourable circumstances under which they were made, and the ample means afforded to the authors for testing their accuracy, press them strongly upon our notice. Valuable as is unquestionably the results of that experience which is derived from private practice, they can bear no comparison to those afforded by the practice of large and well-conducted public hospitals. This is true in all the departments of practical medicine and surgery, and in none more so, than in that of obstetrics. The profession owe much to the gentlemen having charge of such institutions, who, while they have faithfully improved the opportunities which their situations present to them, have not withheld from their professional brethren, whose field for observation is more restricted, the result of their labours.

It has been already stated, that the report of the Dublin Lying-in Hospital, embodied in the volume before us, comprises a period, during which 6634 females were delivered in the institution. These women gave birth to 6702 children. The number of first labours was 2125, or nearly one-third.

The total number of deaths that took place, within the period specified, was 65, or *one* in every 102 cases. Thirty-five of these deaths occurred among the primiparæ. In eleven of the fatal cases, the causes of death were diseases altogether independent of the puerperal state, and in four others, the patients were, at the time of their admission, in a dying state. If these fifteen cases be deducted, the average mortality will be reduced to 1 in 132.

The total number of children, exclusive of abortions, which the 6634 women delivered in the hospital gave birth to, is stated to be 20,680; viz., 11,032 boys and 9,648 girls. The total number of males born in the hospital, during the period embraced in the report, was 3551, of whom 198 were born dead, and 62 in a putrid state; the total number of females amounted to 3151, of whom 127 were born dead, and 80 in a putrid state. Of the entire number of children, 108 were premature; viz., 52 boys, of whom 9 were dead born, and 15 in a putrid state,—and 56 girls, of whom 9 were dead born, and 22 in a putrid state.

"An interesting, and at the same time, a practical question here arises; viz., 'What influence the premature death of the child has upon the duration of pregnancy?' The most satisfactory way by which we can solve this question, is to ascertain, in cases of putrid births, the probable time at which the fœtus ceased to live. Where this is done, it will be very generally found, on close inquiry, that about ten days or a fortnight have elapsed since the period at which the rigor announcing the child's death took place; or, in the absence of this indicative sign, since the mother last felt the fœtal movements. A knowledge of this singular fact, first remarked to us by Dr. Johnson, and which, with a few exceptions, fully accords with our own experience, will often prove of considerable value to the practitioner in cases of the premature death of the fœtus, by enabling him to qualify his prognosis, and to give such directions for the patient's guidance as the circumstance of a near approaching confinement ought to suggest."

In the case of twins, the authors remark, where one becomes blighted, it would seem as if Nature waived the law, just referred to, out of consideration for the living fœtus, and that, therefore, gestation in these cases proceeds undisturbed to the full period.

"There is another point connected with premature births, which possess some interest, and is deserving of attention; viz., that amongst them there occurs a much greater proportion of preternatural presentations—more especially of the lower extremities,—than takes place at the full term of pregnancy. Thus of the 108 premature children, above mentioned, 17 presented with the *breech*, 12 presented *footling*, and 9 with the *arm*, making, in all, 38, thereby giving a proportion of *one* out of every *three* cases nearly: whereas, at the full term of gestation, the frequency of preternatural presentations is only about *one* in *thirty*, between which and the former there is a vast difference."

Under the head of natural labour, we are presented with some excellent remarks upon the use and management of the binder, and the mode of supporting the perinæum. The binder is directed to be applied immediately upon the birth of the child. The authors consider that it can scarcely be questioned that a proper attention to the application, and the judicious management of the binder, promote the favourable separation of the placenta. In confirmation of this, they state that, in one instance only, throughout the period comprised in their report, and for two years previously, had the hand to be passed into the uterus for the removal of a placenta retained from hour-glass contraction; and in a very limited number of cases was it required in consequence of inaction.

The importance of the early and proper application of the binder, immediately upon the termination of every case of labour, is fully recognized by the leading obstetricians of this country, and strongly enforced in the writings and lectures of our writers on and teachers of midwifery; it cannot, however, be too frequently urged upon the young practitioner. It is not merely from the early application of the binder, however, that much good is to be obtained and not a little evil avoided, but equally from its proper adjustment. The practitioner would do well to adjust it himself in every instance; from the manner in which we have seen it put on by the generality of nurses, it is calculated to do but little good, if it be not, in some cases, productive of positive injury.

In guarding the perinæum, the injurious consequences of an error into which junior practitioners are apt to fall, in commencing its support too soon, are pointed out. By this procedure it is made dry and hot, and liable to become inflamed and rigid. The dilatation of the soft parts is not a merely mechanical, but a purely vital process; consequently, anything which tends to alter or derange the natural and healthy condition of these parts, will indispose them for expanding before the descending head of the child. Hence, it should be a main object to keep the perinæum as free as possible from all irritation, and for this reason, the authors advise that we should abstain from giving any support until the increasing thinness of the part, and the extreme tension of the fourchette, indicate that delivery is near at hand.

The whole of the authors' observations on this subject are highly judicious. A rupture of the perinæum is always a very serious accident, and the most distressing consequences may ensue even upon lacerations that do not involve either the rectum or its sphincters.

> "Amongst the humble and working classes," our authors remark, "this accident is very apt to entail incurable prolapse of the uterus or bladder; for, when the support of the perinæum is gone. the chance of permanently restoring the displaced organ to its natural situation is small indeed, and the palliative measure of wearing a pessary is almost impracticable."

The importance of unremitting watchfulness during the ordinary convalescence from natural labour, in order to secure the patient's safe recovery, is very ably enforced. The circumstance of castor oil, the purgative generally administered within a day or two after labour, being ill-suited for patients who have hemorrhoids, as it is very apt in such to produce tenesmus, and considerable irritation of the rectum, must be familiar to every practitioner. There are some females, also, who have an unconquerable aversion to this medicine, and if prevailed on to swallow a dose, the stomach immediately rejects it. In both cases, we are assured that the following prescription of Dr. Johnson will be found to answer admirably well.—℞.—Sulph. magnesiæ ℥ss; carb. magnesiæ ʒss; infusi sennæ ℥iss; tinct. sennæ ℥ss; mannæ opt. ʒiij; aqua cinnamomi ℥ij. M. A wineglass for a dose.

"An observation," the authors remark, "has been made by the late Dr. Joseph Clarke (*Trans. of the Assoc. of the Coll. of Phys.*, Dublin, vol. i. 371), to the effect that those females who suffer much from after-pains, usually have painful menstruation. This is a curious coincidence, the truth of which we have frequently verified, and we would extend its application to those cases where they occur with first children. In these instances, which are rare, it is most necessary to keep a vigilant eye over the patient, and to view the after-pains with much suspicion, as they are very apt to turn into actual inflammation, or, perhaps, to speak more correctly, to be induced by inflammation."

On three or four occasions, the authors have known cramps in the legs to have evidently taken the place of after-pains, and, in fact, to have completely supplanted them. These cramps came on soon after labour, and continued for some hours, during which period, and subsequently, the female was entirely free from all uterine pain, although she had suffered from after-pains in her previous confinement; at the same time, the discharge of coagula from the uterus showed that there existed adequate cause for the production of after-pains, while the cramps were materially lessened or removed by the same treatment that is ordinarily successful in suspending after-pains.

When there exists a disposition to sore nipples, or where the female has suffered from this cause after her previous confinements, the authors advise that the infant be withheld from the breast till after the secretion of the milk, and "until the breast has become 'free,' as it is appropriately termed." They also consider it objectionable to let the child draw the breasts whilst they are distended and painful from the first secretion of the milk, and when as yet it does not flow freely through the lactiferous tubes; from the frequent ineffectual attempts of the child to procure nourishment, excoriation of the nipple is liable to be produced, and this, in its turn, endangers inflammation of the gland. The tumid and painful state of the mammæ is, according to their experience, best relieved by frictions with warm oil, and if any febrile excitement attend—as is not uncommon—small and frequently repeated doses of tartar emetic, with some mild purgative. If, after friction of the breasts, they continue hard and tense, benefit is derived from keeping them enveloped in a piece of soft linen spread with a cerate composed of wax and olive oil, melted together, and having in the centre a hole cut for the nipple. This acts like a perpetual stupe, and keeps the breasts soft and relaxed.

They feel persuaded that by attention to the above simple rules, many cases of mammary abscess may be prevented, in confirmation of which they mention that only two cases of suppuration of the breast occurred in the hospital during the three years of their report, and that Dr. Johnson, in his private practice, has always pursued the same plan with like success.

When there is reason to dread an inflammation of the breast, the child is entirely withheld from it, and the affected gland is kept soft by friction; if the nipple itself appears to be the seat of any inflammation, a bread and milk poultice is applied to it.

Among the various topical applications for sore nipples employed in the hospital, the tincture of catechu holds a high place; it is best adapted for the simply excoriated or abraded nipple; nearly similar to this, but more cleanly, is the solution of pure tannin, made by dissolving five grains in an ounce of distilled water. The following is a favourite lotion with Dr. Johnson, who has been in the habit of using it for many years.—℞.—Sub. borat. sodæ ʒij; cretæ precipitat. ℥i; spiritus vini, aquæ rosæ, āā ℥iij. M. This may be applied alternately with the following ointment, or the latter may be used alone. ℞.—Ceræ albæ ʒivss; ol. amygdal. dulc. ℥i; mellis despumat. ℥ss. Dissolve fully by means of heat, and then gradually add bals. Peruviani ℥iiss. M. In some cases, benefit has been known to result from the use of tincture of galls and compound tincture of benzoin, in equal proportions.

> "It is always well to have in mind a number of these different preparations, for it not unfrequently happens that one will answer our purpose when others have failed. For fissured nipples some authors strongly advise the application of solid nitrate of silver, but our experience does not permit us to speak of it. Dr. Johnson thinks it is sometimes a good remedy in such cases, at a remote period from delivery; but that during the puerperal state its use is not advantageous, as it is apt to be followed by mammary abscess."

Some excellent remarks follow, in relation to the treatment of mammary abscess, several cases of which are annually admitted into the chronic ward of the hospital, in poor women who have been confined at home, or who have been exposed to cold and hardship after leaving the institution. The points principally insisted upon are, that the matter be permitted to come very near the surface, almost until it begins to point, before the abscess is opened, but to avoid a spontaneous rupture of the abscess; that when an opening is made, it be sufficiently extensive, and outside the areola, to prevent a retraction of the nipple from ensuing. After all inflammatory action has subsided, applying to the breast a portion of lint moistened with a mixture of one part of spirits of wine, and six or eight parts of water, rendered warm before it is used—a very small bit of simple dressing being interposed over the orifice of the abscess—answers well, by promoting the contraction of the abscess, and removing the indolent and relaxed condition which the poulticing produces in the granulations and adjacent integument.

At a more advanced period, when all tenderness and inflammation have completely subsided, but the abscess continues to discharge, the authors direct the breast to be strapped with adhesive plaster, which they have found a very safe and effectual means for expediting the obliteration of the cavity of the abscess.

> "The mode of applying the plaster is as follows: one long, narrow strip is first put tolerably tight round the base of the breast, so as partly to insulate the gland; other strips are then successively applied in such a manner as to envelope the whole, and exert upon it a moderate degree of compression; lastly, a small aperture, corresponding to that of the abscess, is cut to allow exit to the discharge. It is generally necessary, in two or three days, to renew the application of the plaster, as it becomes loose and displaced."

To such of our readers as are engaged in extensive practice, no apology will be necessary for the foregoing notice of subjects which, to the inexperienced, may appear of but trifling importance. To some, it is probable that the remarks of our authors may present nothing new, but to the major portion the excellent practical directions they inculcate cannot fail to prove acceptable, the opportunities for their application being of frequent occurrence.

The total number of cases of natural labour that occurred within the period to which the report before us refers, was 5842; of which 1752 were first pregnancies. Sixteen women, seven of whom were primiparæ, died amongst the natural cases, viz: *four* of uterine phlebitis, *two* of peritonitis, *two* of phthisis, *one* from mania, *one* of arthritis, *one* of sloughing of the uterus and vagina, *one* of laceration of the peritoneal coat of the uterus, *one* of pneumonia and bronchitis, *one* of scarlatina, *one* of anasarca, and *one* from a tumour compressing the trachea.

Such of the cases of natural labour as are deserving of particular notice, are detailed at length.

Appended to the cases of uterine phlebitis, we are presented with some interesting remarks in reference to the pathology and treatment of that most intractable disease. The authors think that there can be no doubt whatever that very many of the cases described by the older writers as instances of puerperal fever without any local inflammation, were nothing more nor less than examples of uterine phlebitis, in which the lesion of the veins was overlooked or disregarded; while of late years, the latter has been, in their opinion, a very—perhaps the most—frequent cause of the more insidious and fatal form of the fever of child-bed.

The following are, they conceive, the principal causes or circumstances which most frequently determine, or, in ordinary language, predispose to, the development of puerperal phlebitis.

"1. Mechanical injury of any kind inflicted on the uterus, as by protracted labour, by instruments, or by the hand introduced into its cavity. There is hardly any operation so much to be dreaded, on account of its after consequences, as that required for the extraction of a morbidly adherent placenta. In private practice this may not appear so striking, but in hospital practice its truth is beyond question. Dr. Lee seems disposed to attribute the production of metro-phlebitis to mechanical injury of some sort, sustained by the uterus during labour.

"2. The detention of a portion of the after-birth or membranes. This gives rise to a foul discharge, which may prove a source of irritation to the veins, either by absorption or by direct contact with their patent extremities on the internal surface of the uterus. The absorption of some morbid animal matter being the cause of puerperal fever, is no new idea. Mr. Charles White, of Manchester, in his Treatise on the Management of Pregnant and Lying-in Women, speaks of this as a fertile source of child-bed fevers: and by way of explanation, adds, that the womb is an organ, of all others, the most favourably formed to absorb.

"3. Hemorrhage. It is a well-established physiological fact, that the loss of blood promotes absorption, hence, we can in some measure understand how flooding, at the time of labour, operates in rendering women obnoxious to attacks of puerperal phlebitis. The comparatively uncontracted state of the uterus, which accompanies and follows profuse losses in the third stage of labour, is a circumstance which also tends to the same result, by leaving the mouths of the veins on the raw, internal surface of the organ, incompletely closed.—(*Hasse*)." "The great mortality amongst cases of placenta prævia, where turning has been performed, is well known, and in a large proportion of instances, is owing to the supervention of phlebitis, whose production here may be ascribed to the joint effect of the mechanical injury arising from the introduction of the hand, and the immoderate loss of blood. Dr. Merriman states, 'that he has known the phlegmasia dolens to follow this species of labour on many occasions.' The close connection subsisting between this complaint and the one under consideration, is generally acknowledged.

"4. Epidemic influence. No reasonable doubt can be entertained as to the sufficiency of this cause to call into action morbid derangement, which otherwise would not have taken place. Thus, during the prevalence of an epidemic, a patient will be attacked with the disease, under circumstances which, in its absence, would not have been attended with the slightest unfavourable results. The same state of the atmosphere that gives rise to erysipelas would seem to favour very much the development of puerperal fever generally, and this form in particular. Thus, during the last epidemic of puerperal fever in the Dublin lying-in hospital, erysipelas and diffuse inflammation were prevailing to a frightful extent in most of the surgical hospitals of the city, in so much that it was with extreme reluctance any operation was undertaken. In connection with this, we may be permitted to advert to two papers in the Provincial Medical Journal; one by Mr. Storrs, of Doncaster, and the other by Mr. Ebrington, of Birmingham, and to another by Dr. Peddy in the Northern Journal of Medicine; all of which go to establish the fact that puerperal fever of some form—most frequently the phlebitic—may be induced by the fomites or infection conveyed from erysipelas. This affinity or connection between the two diseases appears to have been recognized by some of the older writers—Pouteau, Home, Young, Lowder, &c.—from their calling puerperal fever 'an epidemic erysipelas of the peritonæum.' In the year 1821, Dr. J. C. Douglass's paper on this malady was written, and he therein observes: 'The contagious puerperal fever of Dublin is, I venture to pronounce, nothing more nor less than a malignant fever of a typhoid character, accompanied with an erysipelatous inflammation of the peritoneal covering of the stomach, intestines, and other abdominal viscera.' (*Dublin Hosp. Reports*, vol. iii.) Dr. S. Cusack, in speaking of his second or 'low form of puerperal abdominal inflammation,' expresses his conviction 'that this disease, if not the same, is at least a modification of that known by the name of diffuse cellular inflammation.' The description given by Dr. C. of his second form, so exactly corresponds, in its leading features, with uterine phlebitis, that we have little hesitation in pronouncing the two to be identical. It must be remembered that, at the time his essay was written (1828), the subject of uterine phlebitis was very imperfectly known in this country." (Dr. C.'s paper was published in the *Edin. Med. and Surg. Journ.*, vol. xxxi.)

"Notwithstanding all that has been said or written to the contrary, we think that the contagiousness—or, to use the more explicit term suggested by Dr. Christison, the 'communicability,' of puerperal fever in all its forms, is a fact established on the most irrefragable evidence, so much so that it would now be almost criminal for any practitioner to act on the opposite assumption.

"Besides the above, which are the principal exciting causes, there are many others that are influential in rendering puerperal women obnoxious to attacks of metro-phlebitis, viz: mental depression or despondency; broken down or seriously impaired health at the time of labour; previous habits of intemperance or dissipation; the application of cold, or too early use of stimulants after delivery, &c. In proportion as two or more of the above predisposing causes coexist in any individual case, so will the liability of a patient's being attacked be increased. This, indeed, is self-evident."

So important is everything relating to the etiology and pathology of puerperal fever, many particulars in relation to which are still involved in obscurity, while upon many others there exists a very great difference of opinion among the most respectable and authoritative writers, our readers will pardon the length of the foregoing extract. Presented as the result of strictly clinical observations, the conclusions of Drs. M'Clinlock and Hardy are particularly interesting.

Our authors have very seldom found it possible to decide, with certainty, the existence of uterine phlebitis until the symptoms of the second stage—those, namely, which denote the admixture of puriform or septic matter with the sanguineous current—make their appearance, as it is these only which constitute the true pathognomonic symptoms of the disease. In the first stage, the symptoms assume more or less of the character of ordinary metritis. Among the principal of which, are noticed, rapid pulse, uterine tenderness and pain, preceded very commonly by rigor, foul tongue, depraved or scanty lochial discharge, tumid abdomen, recession of the milk, &c. The most constant of these symptoms is frequency of pulse. In some cases, the local distress scarcely attracts attention; even in these, however, an unusual degree of sensibility or tenderness of the uterus will be detected on direct pressure being made with the fingers upon the fundus and sides respectively of the uterus. The fact of uterine pain being sometimes entirely absent even in virulent or fatal cases, clearly shows that it is not an essential symptom.

When fully developed, the diagnostic symptoms of phlebitis constitute a most striking and remarkable assemblage. No defined or abrupt line of demarkation occurs between the first and second stages, the one passing gradually and imperceptibly into the other. In consequence, indeed, of its insidious mode of advance, the disease often makes considerable progress before its true character is suspected, or it may happen that the first unequivocal intimation of its existence will be the appearance of some of its secondary affections, such as arthritis, ophthalmia, purulent deposit in the cellular tissue or muscles, &c.

"The symptoms which usually mark the second stage of uterine phlebitis are the following, viz: the occurrence of rigor not referable to any other cause; rapidity of pulse; a peculiar prostrated expression of the countenance, which becomes of a sallow colour; excited action of the arteries, most visible in those of the neck; gradually increasing debility; loss of appetite; profuse perspirations; diarrhœa; sleeplessness; foul and generally dry tongue; a disagreeable, nauseous smell on the patient's breath, most resembling raw meat; muscular tremors; and, occasionally, low delirium."

The vast importance that a correct diagnosis of uterine phlebitis should be made in its early stage, from the fact that it is only by an active treatment commenced at the very onset of the disease, we can hope to arrest its progress in perhaps the majority of cases, has induced us to present here, notwithstanding their length, the following observations by Drs. McClintock and Hardy on the individual symptoms and their relative importance.

"1. The occurrence of *rigors* is a very characteristic symptom of phlebitis, but it must be remembered that a rigor may arise from other causes; as milk fever, ephemeral fever (weed), or incipient inflammation. To estimate its value, therefore, as a diagnostic, it should be taken in connection with all the other symptoms, and the history of the case. The rigors of phlebitis may vary in intensity from a mere passing sensation of chilliness, to a state of universal shivering, as severe as we see in the cold stage of ague. Again, their number, and the periods of their recurrence, are liable to great variety in different cases. Examples are not wanting where the rigors have assumed a very marked periodicity, with considerable remission of the other symptoms during the intervals—a state of things calculated to lead an unwary practitioner into the belief that the patient was labouring under some form of intermittent fever. It is rare to find the fits of shivering attack a patient more than once in the twenty-four hours, and the seizure may occur at any moment; thus it not uncommonly comes on during sleep, whereupon the woman immediately awakes. The recurrence of the rigor within twenty-four hours is a circumstance which, in itself, almost unequivocally points out the existence of phlebitis, as such is never known to happen in ephemeral or milk fever. Some patients acquire an instinctive horror of the rigors, and view their returns with a feeling of vague apprehension and dread. We have seen many fatal cases of metro-phlebitis, in which there had been but a single rigor throughout the whole course of the disease, and occasionally this was a very slight one. As the result of our past experience, we think there is hardly any single symptom which should be regarded with more suspicion and alarm in a puerperal patient, than a rigor, when it cannot be distinctly traced to milk fever or weed. We have sometimes observed a slight degree of rigor to follow, and apparently to have been induced by the act of evacuating the bowels, particularly if diarrhœa were present.

"2. A short time before the accession of a fit of shivering, the *pulse* usually falls considerably in frequency, so that if reckoned by the physician at this time, he might be incautiously led to give an opinion which the occurrence of the next half hour, perhaps, would induce him to retract. In the reaction following the rigor, the pulse invariably becomes much accelerated, but generally subsides again, in the course of a few hours, to its former standard, whatever that may have been. Its average frequency between the rigors varied from 100 to 120 or 130; in a few instances, it was so low as 90 or 84, and this, we think, is to be regarded as a very favourable prognostic. In cases where the pulse was rapid, we have generally found that it had a sharp, vibrating feel under the finger, though not conveying the idea of strength or fullness, but partaking rather of the hemorrhagic character. It might well be denominated an 'irritable pulse.' Generally the first symptom of improvement in the state of the pulse was its losing this sharpness, and becoming soft and yielding to the touch; indeed, until it had assumed this, its healthy character, there was seldom any real amendment, even though a diminution in its frequency might have taken place.

"3. *Diarrhœa* and a tumid state of the abdomen, from flatulent distension, were very constant, but not invariable attendants upon the second stage of puerperal phlebitis in the examples that have fallen under our observation. Even in those instances where diarrhœa was absent, there was a degree of irritability of the bowels which required much care and circumspection to be exercised in regulating the diet and medicines. On account of this symptom the mercurial treatment could seldom get a fair trial, even though every precaution was used to guard against its running off by the bowels. The evacuations chiefly consisted of a brownish liquid possessing a most intolerably offensive smell. On the first appearance of diarrhœa, and frequently before it commenced, the most scrupulous attention was paid to the patient's food and drinks, as well as to the medicines. The remedy on which most reliance was placed for controlling the diarrhœa, was opium in some form, the ordinary astringents having been found wholly ineffectual in most cases. Acetate of lead, in solution, with acetate of morphia, sometimes had the desired effect of moderating the purging, when other astringents had failed As a last resource, the abdomen has been blistered, and very often with satisfactory results.

"4. The *tongue* very commonly presents some unhealthy appearance, but this will, of course, much depend upon the state of the stomach and bowels. Generally it is covered with a thick, whitish coating, and when amendment begins to take place, it cleans from the tip and edges. So far as our experience goes, the most unfavourable condition of the tongue is that of dryness, with its middle of a brown colour. We lately saw a case of well marked puerperal phlebitis, in which the tongue remained clean and moist until a very few days before dissolution, when, for the first time, it presented a slight brown streak down the centre, which was less moist than the adjoining parts; this gradually increased till the whole upper surface of the organ assumed a mahogany colour. This patient, all through her illness, was quite free from gastro-enteric derangement of every kind, except some little irritability of stomach.

"5. *Vomiting* is a symptom we have, comparatively speaking, rarely seen in pure uterine phlebitis, and never almost to any great extent. We feel disposed to consider it as more indicative of peritonitis than of phlebitis. When it does come on, it is usually towards the close, and is associated with other gastro-enteric symptoms.

"6. Throughout the second stage, the *skin* is generally bedewed with moisture, and when the complaint is drawing near to a fatal termination, profuse sweating, particularly during sleep, is a constant attendant. A miliary rash on the neck and chest very often accompanies this symptom."

"The secondary affections of metro-phlebitis are numerous. Those which we have seen comprise the following, viz., arthritis; abscesses in the muscular and cellular tissues, and in the parotid gland; pleuritis; inflammation of the eye; ulceration of the intestines; eruptions of large, purulent bullæ, or miliary vesicles, on the skin; inflammation of the lungs, &c. As to the period at which these make their appearance, there seems to be great latitude—a few days being sufficient for their production in some instances, whilst in others they will not occur at all, even though the patient may linger on for several days or a fortnight."

Our authors do not recollect having ever seen an example of uterine phlebitis coming on in the second week after delivery, where the patient had passed through the first seven days without any unfavourable symptom.

The treatment recommended during the first stage of the disease is the antiphlogistic—general and local bleeding, the warm bath, and the administration of mercury so as to affect the system. It was a trite observation in the Dublin Hospital that if once decided ptyalism could be induced, recovery might almost be deemed certain. In the second stage, when the more characteristic features of the disease have become developed, the treatment is almost wholly empirical, or directed with a view to relieve urgent symptoms. Mercury in this stage is rarely admissible.

> "The leading indications to be fulfilled are: 1st, to relieve or mitigate any urgent symptoms, such as diarrhœa, sleeplessness, vomiting, &c.; 2d, to support the strength by diet, as mild and unstimulating as possible; and, lastly, to enjoin the strictest rest of mind and body—to confine the patient to the horizontal position in bed—to prevent every source of excitement, moral or physical—and, in short, to adopt, with unremitting vigilance, every means calculated to tranquilize the system, and to abate or ward off inflammatory action. For checking the diarrhœa and procuring rest, opium is the sheet-anchor; from amongst its many preparations we can seldom fail of finding some one to answer the circumstances of each particular case. Where great hurry of the circulation existed, we have seen marked benefit from the administration of digitalis or prussic acid, given in divided doses, and combined or not with a small opiate, according to the state of the bowels. So far as our experience enables us to judge, we should say that stimulants will very rarely be found beneficial in the treatment of uterine phlebitis; they have always seemed to aggravate the existing symptoms, and to increase the febrile disposition, which should be especially avoided. In one case of marked uterine phlebitis, where the prominent symptoms were rigors and colliquative sweats, we gave trial to the use of nitro-muriatic acid, but without any apparent success."

We have endeavoured to lay before our readers a tolerably full account of the views of our authors in relation to uterine phlebitis; in doing this, we have been led into quotations which may appear to some of unreasonable length, but the fearful character of this form of puerperal disease—the unsettled state of medical opinion in relation to its causes and treatment—and the very valuable information comprised in the clinical observations of Drs. McClintock and Hardy, must be our apology if we have transcended the usual privilege of reviewers. It is probable that it is through our digest and quotations alone that these observations will reach a large proportion of our readers. We may remark that, in all the more important particulars, the observations of our authors coincide with our own. We have not, it is true, seen the very decided good effects result from direct depletion, which they ascribe to it in the first stage of the disease; copious bleeding appeared to us to be more decidedly beneficial in the more frequent form of puerperal fever dependent upon peritoneal inflammation; or in which, as correctly remarked by our authors, inflammation, commencing in the uterus, spreads from thence, with more or less rapidity, over a greater or less extent of the serous membrane of the abdomen.

Some interesting observations are contained in the present section, in reference to the pathology and treatment of phlegmasia dolens. Although fully satisfied of the general correctness of the doctrine which ascribes this disease to phlebitis, yet the authors would not go so far as to say that every case was caused solely by venous inflammation. In regard to treatment, they advise that the patient be strictly confined to bed, and kept in the horizontal position. In the acute stage, a diet of the simplest and most unstimulating kind. The affected limb to be fomented frequently with soothing applications, and leeched over the seat of greatest tenderness; after the leeches fall off, to be followed by a soft, light poultice. The external use of mercury they have found generally beneficial, when carried so far as to gently affect the system, and produce slight ptyalism. Next to mercury, in the list of remedies, they place James' powder, and diuretics, the former being given alone or combined with blue pill or Dover's powder, according to circumstances. After the gums have been touched, diuretics are to be exhibited, unless diarrhœa be present, in which case astringents must be employed, particularly opium; after the very acute symptoms are subdued, blisters will be found of much benefit. So soon as all febrile and inflammatory symptoms are removed, a more generous regimen, and a less depressing line of treatment, may be gradually and cautiously commenced with. To remove the swelling and stiffness of the limb, our authors recommend gentle frictions with any discutient liniment, and subsequently bandaging with a flannel roller, from the toes to the top of the thigh. As the patient exhibits symptoms of amendment, some gentle tonic, as the infusion of gentian, may be prescribed, the value of which would appear to be generally augmented by the addition of a diuretic; subsequently, the quinine has been found to act most efficaciously in restoring the appetite and tone of the system. "The swelling, in this stage, has generally all the characters of œdema, and when the limb is indented with the finger, the impression will be retained for some time; whereas, in the early stage of the disease, the integument is tense and elastic, and does not usually pit on pressure."

From what our authors have seen of *puerperal mania*, they would for practical purposes arrange the different cases of it into three classes.

The first including all those cases where there is a highly excited state of the circulation and system at large, but without any evidence of cerebral inflammation. The skin will be hot and dry; the pulse rapid, sometimes extremely so, and the patient disposed to be noisy and talkative. In this form of the disease, according to Drs. M'C. & H., tartar emetic in divided doses is superior in efficacy to any other remedy with which they are acquainted. In this, as in other forms of puerperal mania, the liver and alimentary canal are generally in a deranged condition. Where constipation was present, blue pill or calomel was administered and followed by a purgative draught. A narcotic was occasionally given at bed-time, provided that no indications of cerebral congestion or inflammation were present. The extract of conium, or hyosciamus, was usually preferred, but if this did not procure sleep, the solution of acetate of morphia, or the black drop, was given.

In the second class are arranged those cases where the mania is attended with inflammation of the brain or its membranes, which serious complication will of course demand the energetic employment of all the established means for the treatment of phrenitis. This is a comparatively rare form of the disease.

The third class of cases are those in which the impairment of reason occurs as a solitary symptom, unaccompanied by any marked bodily derangement. The pulse is little above the natural standard, the skin is cool, and there is no headache or flushing of the face. The character of the insanity does not seem to be subject to any fixed law, but more commonly the patient is gloomy and taciturn, and rarely excited or violent. The plan or treatment that was adopted in these cases chiefly consisted in correcting the state of the bowels when they were disordered, and administering anodynes at night. Preference was usually given to the extract of hyosciamus with camphor; the solution of the acetate of morphia, or the black drop being substituted where there was much vigilance.

"There is," our authors remark, "a fact of much practical interest connected with our present subject, which we may here allude to, namely, that abdominal inflammation sometimes alternates with the alienation of reason, and this at a period after delivery when the patient is usually considered free from the liability to such attacks. A remarkable instance of this was related to us by Dr. Johnson. A patient some days after delivery became maniacal, and in this state continued for a week, when she regained the possession of her intellect, but to this immediately succeeded violent peritonitis, which carried her off. A nearly similar occurrence took place in another instance, whose history we have given at length.

In Case XXVI. of the present chapter, it may be observed that, after the patient was attacked with mania, the symptoms of uterine inflammation almost entirely disappeared, but upon the return to consciousness they again became apparent. We lately saw a fatal case of puerperal mania, of the low, melancholic form, with rapid pulse, in which, on examination after death, there was found most extensive peritonitis, with copious lymphy exudation, although during life she had not exhibited a single symptom to lead to a suspicion of the existence of abdominal inflammation.

"Nearly all the cases of puerperal mania that we have ever seen, occurred within the first week or ten days after parturition."

The ensuing section of Dr. McC. and H.'s work is devoted to observations on several points connected with the management of tedious and difficult labours. These are particularly interesting, as comprising the results of an experience which in its extent is seldom attained by the most extensive practitioners of midwifery during a protracted professional career.

In all cases of tedious labour that have come under the observation of the authors where the *first stage* was unusually prolonged, the cause almost invariably has been a rigid unyielding condition of the os uteri. These cases occurred exclusively among primiparous females, and more commonly among those in whom the membranes had ruptured at an early period of the labour. In the Dublin Hospital the treatment of cases attended with a rigid and undilatable state of the os uteri consists chiefly in the use of tartarized antimony, venesection, and the warm bath, the bowels being first well freed. The remarks of the authors upon the cases and circumstances in which the lancet should be preferred, are particularly excellent; they are too long, however, to quote.

Tartar emetic was given in almost every case where the first stage of labour was protracted beyond a reasonable time. We are advised against its use, however, until we are satisfied of the existence of true labour pains. In doubtful cases, where the pains appear of a mixed or irregular character, bleeding has been the practice most commonly adopted in the hospital, inasmuch as it is calculated to prove beneficial whether they be true or spurious.

The warm bath is never resorted to except in cases of obstinate rigidity, which had proved rebellious to every other treatment; hence the number of instances in which it has been necessary to employ the bath is extremely limited—being for the three years to which our authors' observations especially refer, about one out of every thousand labours. From the result of some of the cases which fell under their notice, the impression was made on their minds, though, perhaps, without sufficient reason, that it exerted an injurious effect upon the fœtus.

In their review of the remedies employed for delay in the second stage of labour, they first speak of ergot of rye. This article is pretty extensively used in the hospital in cases of arrest, and in the treatment of hemorrhage after the separation of the placenta. The cases of tedious labour in which it is almost exclusively employed, are, 1st, where the delay occurred in the second stage solely from inert uterine action. It is only when impelled by unavoidable necessity, that the ergot is ever given in any other cases. "For, independent of considerations towards the mother's safety, experience has amply proved that the child will undoubtedly perish unless delivery be accomplished within a limited time after having exhibited the ergot, and therefore it is an important desideratum that the use of the forceps be feasible before resorting to the administration of this remedy."

2d. The *second* class of cases in which the ergot was employed, "were those in which the fœtal head, without any discoverable pelvic deformity to account for it, became arrested in the brim of the pelvis, and remained in this position until bad symptoms began to develop themselves.

> "Under these circumstances, if the fœtal heart were at all audible, the ergot of rye was administered, in the hope that it might bring the head within the reach of the forceps. It may be inferred, from what has preceded, that the ergot was very reluctantly given in these cases, and that it was the accession of bad symptoms only which prompted its employment. Examples of this class were extremely unfrequent, and almost invariably occurred amongst primiparæ."
>
> "The *third* class of cases where the ergot has been had recourse to, includes those instances in which unfavourable symptoms, calling for delivery, manifested themselves whilst the fœtal heart was still audible, but where the use of the forceps or vectis was inadmissible. It is not to be supposed from this, however, that these were cases of obvious pelvic deformity, or impaction of the head, properly so called; if such had existed, it is needless to say this line of practice would not have been pursued. The use of the forceps or vectis was prohibited from the insufficiency of space, and from the state of the soft parts being such as to render their employment hazardous in the extreme, and calculated to expose the patient to the imminent risk, if not positive certainty, of frightful laceration or sloughing of the vagina, and this, too, with a very remote chance of rescuing the infant. From the known influence of ergot upon the child, if delivery be delayed beyond a certain time, it was never given in any of these cases until it became obvious that the preservation of the mother's life peremptorily called for assistance."

The employment of ergot in the second class of cases, strikes us as unnecessary, if not of doubtful propriety. The third class of cases in which the remedy is stated to be employed in the Dublin Hospital, we either do not clearly understand, from the description given above, or we should certainly apprehend positive injury from the administration in them of ergot. The attempt to force onward the fœtal head by stimulating the uterus to increased action, when there is not sufficient space for the application of the forceps, we should very much fear would eventuate in a rupture of the uterus.

The authors' remarks on the choice and employment of instruments will not be particularly satisfactory to the American practitioner. The time for employing both the vectis and forceps, and the manner of introducing them as laid down by our authors, are in strict accordance with the directions of Denman. As the use of the long forceps is entirely excluded in the wards of the Dublin Hospital, it is evident that in cases in which instrumental interference is indispensable, some time is necessarily lost, and consequently the chance of saving the life of the child considerably diminished. The frequency with which the perforator and crotchet are resorted to, will surprise the obstetricians of this country. We cannot say that the reasons adduced by the authors in favour of resorting to embryulcia rather than the forceps, are entirely conclusive. Their remarks on the employment of auscultation to determine the condition of the fœtus, are deserving of attention.

The total number of tedious and difficult labours included in our authors' report, amounts to 259,—of which 173 were delivered without any instrumental assistance. In 52 instances, delivery was effected by the perforator and crotchet, in 18 by the forceps, and in 16 by the vectis or lever. In 88 cases, the principal delay was in the first stage; in 119, in the second stage; and in 52 cases, both stages were protracted. *Twenty-two* women died out of the 259, and *nineteen* out of these fatal cases were primiparous women. Of the children we find that 154 were boys, of whom 83 were born alive, and 105 were girls, of whom 56 were born alive.

Of the 173 delivered without instrumental assistance, 30 got ergot to overcome inertia in the second stage of labour, and only 10 out of the 30 children were born alive.

> "This furnishes strong proof, were any such required, of the deleterious influence of ergot upon the fœtus, as in nearly every one of the above instances, there was unequivocal evidence of the child's vitality when the ergot was given, and in the great majority of them delivery took place within two or three hours after the administration of the medicine."

In the instrumental cases, 34 in number, 17 of the children were born dead.

Detailed histories are given of the more important of the cases of tedious and difficult labours, and a general table is appended showing the age of each patient, the presentation, duration of labour, whether it was first, second, or third pregnancy, &c., sex of child, whether born alive or dead, stage in which delay occurred, mode of delivery, and result to mother.

The third section comprises observations on preternatural labours. The directions for the management of breech and footling cases are judicious, but present nothing with which the American obstetrician is not perfectly familiar.

The authors remark, that of all the breech and footling cases which have come under their observation, in about one-third, they should think, the child entered the pelvis with its face looking towards the abdomen of the mother; yet in no instance was it delivered face to pubis, and in very few was it requisite to give even the slightest assistance to nature in making the turn, whereby the back of the infant is brought round to correspond with the forepart of the pelvis.

The total number of the preternatural presentations included in the report before us, amount to 227; of which 101 were breech cases, exclusive of those (39 in number) which occurred amongst the twin cases. Of the 101 children who presented with the breech, 37 were dead born, 21 of which were putrid: 24 were premature, of which 18 were still-born, 13 being in a putrid condition: of the *six* born alive, *one* was at the sixth month; *three* at the seventh, and *two* at the eighth; *two* were boys, and *four* girls. *Nine* of the premature still-born children were males; and 23 of the entire number of the still-born. Of the 101 breech cases, 58 were males and 43 females. *Three* of the mothers died.

The section concludes with a brief statement of such of the cases of preternatural labour as seem worthy of notice, and a general table, as in the cases included in the preceding section.

Some interesting remarks are made by our authors on the subject of turning in shoulder and arm presentations.

In arm cases they state that they have found great benefit from the use of tartar emetic, from its relaxing effects upon the os uteri, as also in those cases where it was an object to moderate or subdue uterine action, preparatory to introducing the hand for the purpose of turning. They give it in one-sixth, or one-fourth of a grain doses, repeated at intervals, varying in length, according to the urgency of the case, or until it produced the desired effect, or brought on full vomiting.

> "Indeed," they remark, "it is a very usual practice, in all cases of arm presentation, to exhibit small doses of tartar emetic solution before the os uteri is fully dilated, with a view to prevent the accession of strong uterine action, and to favour the relaxation of the soft parts. This plan is also followed in cases where the presenting part is not clearly ascertained; the antimonial solution being given in small quantities, until the os be fully dilated, or the membranes ruptured, after which its further administration is regulated by circumstances."

In turning, the authors advise the bringing down of one leg only, taking hold of either knee or foot, whichever should happen to be the most convenient and accessible. They point out in a very striking manner the advantages which recommend this mode of turning, and have led to its adoption in the Dublin Hospital as the usual practice.

The fourth section embraces observations in reference to complex labours. A very full examination is entered into as to the proper treatment of placenta prævia. After pointing out the extreme difficulty of diagnosis between those cases in which the hemorrhage results from the implantation or encroachment of the placenta upon the os uteri, and accidental hemorrhage from other causes, in the commencement of an attack, when the os uteri is high up and undilated, and no pains are present, the authors remark—

> "In all cases of accidental hemorrhage and partial presentation of the placenta, where the membranes could be felt at the os uteri, the established practice (in the Dublin Hospital) was to rupture them, either with the fingers or a blunt stilette, should the discharge of blood be immoderate, or prove uncontrollable by the ordinary means. If this did not induce an amount of uterine contraction sufficient to repress the hemorrhage, other means of a similar tendency were resorted to, such as friction over the uterus, stimulating enemata, or, if the state of the parts would admit, the ergot of rye, unless much exhaustion or depression of the vital energies was present. Such a condition of the patient always renders the use of ergot extremely hazardous, as the effect of this medicine upon the system is itself depressing. It very rarely happens, however, that rupturing the membranes is not an effectual means for suppressing the hemorrhage in cases such as have been just described; and there can be no question but that it is a much safer proceeding than introducing the hand and turning. If the pains come on, we may rest assured that the effusion of blood will be restrained; and if the uterus be not excited to action, and if the hemorrhage continue, that no great difficulty can be experienced in the operation of version. But we must again repeat, that a case in which the ulterior measure of turning will be called for, is extremely rare. Our personal observations lead us to this conclusion, which is further corroborated by the more extensive experience of Dr. Johnson. Where the patient is much reduced before the operation of puncturing the membranes, it is most desirable that labour should not set in for some hours, provided, of course, that the great object of our interference, the arrest of the hemorrhage, shall not have been achieved; as the respite will allow time for the strength to be recruited before any further demand is made upon her enfeebled bodily powers. Under circumstances of this kind, where the hemorrhage has been controlled by letting off the liquor amnii, but the patient is miserably weak, it becomes a question worthy of serious consideration whether a full opiate may not prove beneficial, by deferring the accession of labour pains to a more favourable time. We have seen it administered with this intention, and have had reason to be much gratified at the result."

Placenta prævia occurred, on an average, only once in 1500 cases, according to the combined statistics of Drs. Joseph Clarke and Collins, and of our authors; and if we exclude the instances of partial presentation of the placenta, which did not require turning, its frequency will appear still lower. Our authors have not observed that any constant or uniform proportion existed between the quantities of the hemorrhage and the extent to which the placenta has covered the os uteri. They have seen as profuse and alarming losses of blood where there was only an edge presenting as in any other cases.

Delivery by turning the child they would almost restrict to cases where there is a complete, or nearly complete implantation of the placenta over the mouth of the uterus, or where the hemorrhage is not arrested by the rupturing of the membranes.

Previously to the os uteri being sufficiently dilated to render the passage of the hand practicable, reliance is placed for the arrest of the discharge on the use of the tampon, together with the strict observance of all the general rules applicable to every case of uterine hemorrhage. The tampon was only resorted to in the hospital in cases where the entire mouth of the uterus was covered by the placenta, and whilst it was in a state to obstruct the entrance of the hand. Confining the tampon to such cases very much lessens the liability to internal hemorrhage—such, at least, is the experience of our authors. It is well, however, they remark, always to bear in mind the possibility of this serious occurrence, and to keep a close watch over the patient as long as the tampon remains in the vagina.

To the plan recently proposed by Drs. Simpson and Radford, of extracting the placenta before the child, in cases of placenta prævia, Dr. Johnson, it is stated, entertains very strong objections, not only because it necessarily destroys the child, but also from a conviction of its inapplicability to cases of rigid os uteri, which is the chief or almost only obstacle to the performance of version in these cases.

Our authors doubt, and with propriety, we think, the correctness of Dr. Simpson's doctrine, that the hemorrhage in cases of placenta prævia issues principally or entirely from the vascular openings on the exposed placental surface; they cannot persuade themselves that the great amount of the blood discharged does not proceed from the uterine vascular orifices.

Some interesting remarks follow on the circumstances under which the exhibition of opium may be expected to prove beneficial in this as well as in the accidental species of flooding.

The authors lay down, with great precision and judgment, the rules for the prevention of hemorrhage immediately after delivery. They arrange these under three heads; viz., first, such as are calculated to secure a tranquil state of the circulation at the time of delivery; secondly, judicious management of the second stage of labour; and, lastly, under certain conditions, the use of ergot of rye; we can spare room only to notice the authors' remarks on the latter.

In the hospital such decidedly favourable results have been experienced from the administration of ergot as a preventive of *post-partum* hemorrhage, that they have no hesitation in pronouncing the practice to be both safe and efficient.

> "It may be given at one or other of three periods: namely, when the head of the child is on the perinæum, and about to be expelled; or immediately after the head has cleared the os externum, and before the shoulders have passed; or, thirdly, as soon as the insertion of the cord into the placenta can be felt. By giving ergot before the child has been expelled, some time may be gained, but should the placenta be morbidly adhering to the uterus, the difficulty of introducing the hand for its removal will be greatly increased. By adopting the third plan, this source of apprehension is avoided. To this method it may be objected that much time will, perhaps, elapse, and a considerable quantity of blood be lost, before the ergot is administered; nevertheless, the possibility of the placenta being morbidly adherent, should be ever present in the mind of the practitioner, and deter him from resorting to a measure which may so greatly augment the danger of the complication. Dr. Johnson, who introduced the practice, generally gives the ergot according to the mode last recommended. In certain instances, however, where from previous losses it was a matter of the utmost importance to prevent any further hemorrhage after delivery, we have not scrupled to administer it in the second way spoken of above, and hitherto without any unpleasant effect."

The author's directions for the management of hemorrhage occurring between the birth of the child and the expulsion of the placenta, are excellent, but present nothing with which the American obstetrician is not familiar. The directions laid down by them for the arrest of hemorrhage occurring subsequent to the expulsion of the placenta, are equally judicious. Were we not fearful of extending this review to too great an extent, we should be tempted to present an extract or two from this portion of the work.

Under the head of Retention of the Placenta, after laying down the general rule that the introduction of the hand for the removal of the after-birth is never to be performed, unless from a well-grounded conviction of its imperative necessity, our authors remark, that out of all the cases, amounting, probably, to upwards of two hundred, in which they have seen ergot of rye given before the birth of the child, there was only one instance in which the after-birth was not expelled by the natural efforts, aided occasionally by external pressure on the uterus, and in this solitary case it was retained from inertia. Had there been, however, they remark, a morbid adhesion of the placenta in any of these cases, it is more than probable that the difficulty of detaching and bringing it away, would have been increased by the previous exhibition of the ergot.

In the cases included in the report before us, there occurs only one instance in which hour glass contraction of the uterus was the cause of the retention of the placenta. Dr. Johnson adopts the opinion of Dr. Douglass, that hour glass contraction should only be considered as a secondary cause of detained placenta, its formation being merely the result of the undecided manner in which the practitioner introduces or attempts to introduce his hand, with the intent to extract a placenta retained by inertia or morbid adhesion. The experience of our authors is in confirmation of this opinion. They think it very likely that the scrupulous attention paid in the hospital to the application of the binder, and also the practice of keeping a steady pressure on the uterus whilst the child is being expelled, and afterwards, must tend materially to lessen the frequency of retained placenta, by preventing irregular contraction, or inertia of the organ.

It was the invariable practice in the hospital, only deviated from in certain cases of abortion, never to exhibit the ergot to any patient in the third stage of labour, until the placenta had come away, or was completely detached, and lying in the os uteri or the vagina. The reason for this is the impossibility of diagnosing in each instance the precise cause of retention; for, although they do not deny that where the placenta is retained from inaction of the uterus, the ergot might be advantageous, yet where the retention is owing to an abnormal adherence, it would only aggravate the difficulties of the case.

Whatever may be the precise cause of the morbid union between the maternal surface of the placenta and the uterus, our authors believe there can be little doubt but that an inflammatory process very frequently attends its formation, and, in all probability, conduces to increase the evil. Hence, they insist, when evera pregnant woman presents herself with localized pain or tenderness of the uterus, the first inquiry is to ascertain with the stethoscope, whether the painful part be over the attachment of the placenta, as in that case the prognosis should be more grave, and the curative measures more prompt and active.

This section, the same as the preceding ones, presents a detail of numerous individual cases, and general statistical tables.

The next section is devoted to observations on *puerperal convulsions.* In regard to the premonitory symptoms of the attack, our authors remark—

"In a disease so justly dreaded, and so full of danger as puerperal convulsions, it is satisfactory to know that there very generally exist some precursory symptoms of a sufficiently obvious character, to lead one to anticipate its attack, and by the timely use of proper measures, to prevent it altogether, or materially lessen its violence. Amongst the cases of convulsions that have fallen under our observation, warnings of this kind were, upon close inquiry, very seldom found to have been absent, although they were not always equally striking or manifest. The most constant of these premonitory symptoms are headache, varying in kind and degree, but generally of a dull, obtuse, or tensive character, and liable to be increased upon exertion, particularly upon stooping; an œdematous condition of the face and upper extremities, most visible in the morning, soon after rising; a furred tongue and sluggish state of the bowels. Œdema of the lower limbs has been considered by Dr. Hamilton and others, as a very certain precursor of eclampsia, but our experience is at variance with this, and we would, with Dr. Johnson, be disposed to regard œdema, *confined to the face and hands*, as more decidedly premonitory of convulsions. In some cases, the above symptoms were more prominently marked than in others, or were accompanied by one or more of the following: viz., vertigo, tinnitus aurium: flashes of light before the eyes, or *muscæ volitantes;* temporary loss of vision, or of consciousness; flushed face; pain at the epigastrium; and an albuminous state of the urine. Dr. Lever was, we believe, the first to draw attention to the state of the urine in this class of patients, and to show that in them it very constantly presents albuminous characters. Not only has he found this condition of the secretion in women actually labouring under an attack of the disease, but what more concerns our present purpose, his investigations have led him to think that it frequently exists for some time previous to the convulsive seizure, so that it may be included in the category of premonitory symptoms." "We have examined the urine in some cases where convulsions were present, and in several others where they were threatened, and the general tenor of the results coincided with those of Dr. Lever. His conclusions receive additional confirmation from the researches of MM. Devilliers and Regnault.—(*Revue Méd.*, Mars 1847.)"

The prophylactic treatment recommended by our authors, consists in blood-letting, followed, if necessary, by leeches to the temples; a mercurial purgative, the regular action of the bowels being subsequently kept up by appropriate laxatives; exposure to the open air, daily exercise, and an unstimulating diet.

"In cases where the predisposition is strong and difficult to eradicate, besides using these remedies, Dr. Johnson is in the habit of giving James' powder, after the following manner: He begins with a small dose at bed-time, and continues increasing it every night by one grain, until it produces some sensible effect, or until the dose amounts to ten or twelve grains, when it is omitted. Should there be any vascular excitement, or should the kidneys not be acting properly, digitalis, with dried soda, may be given in divided doses."

Of the truth and importance of the remarks made by Denman and confirmed by Dr. Collins and other observers, that there exists a strong tendency to peritoneal inflammation in cases of puerperal convulsions, our authors are fully assured. So remarkably strong and difficult to eradicate is this predisposition, they remark, that in several instances they have seen metritis manifest itself in patients who had been only *threatened* with convulsions, the fits having been warded off by an appropriate treatment.

One of the well-established facts connected with puerperal convulsions, is that the vast majority of instances occur among women pregnant of their first children. Ten of the thirteen cases recorded by our authors were primiparæ.

"It rarely happens," they remark, "that a woman is attacked with convulsions in her second labour who has not had them in her first; but when such does take place, we believe it may be often accounted for in this way, that either preventive treatment had been adopted in the first pregnancy, and not in the second, or else that the second labour was more tedious and prolonged than the first, for delay in the labour unquestionably tends to favour the development of the disease. In the thirteen cases related in this report, as well as in all others that have come under our observation, the head was the presenting part, which agrees with the experience of Dr. Joseph Clarke, Labatt, Collins, and Johnson. Each of the two latter physicians, however, saw one convulsive case, in which the head was not the presenting part.

> "It does not appear that females who are subject to epileptic fits are more liable on that account to attacks of puerperal convulsions. On the contrary, it would seem that they enjoy an exemption, and that even the epileptic attacks occur with less frequency, and with mitigated severity, during pregnancy. This certainly was the case in three or four instances of pregnant epileptic females who came under our notice."

The means upon which chief reliance was placed, in the Dublin Hospital, for the treatment of puerperal convulsions, were copious blood-letting, free evacuation of the bowels, cold affusion of the head and face, and the administration of tartar emetic as first recommended by Dr. Collins. The latter is commenced with so soon as the bowels have been well emptied; two grains of the salt are dissolved in four ounces of distilled water, with the addition of one scruple of tinct. opii, and a tablespoonful of the mixture is given every hour, or half hour, according to the urgency of the symptoms.

> "From the known liability to uterine or abdominal inflammation after an attack of puerperal convulsions, it was customary in the hospital to direct occasional small frictions with the mercurial ointment, and also to give some blue pill at intervals, during the first few days after delivery. The object of this was to prepare the system, so that in the event of inflammatory action supervening, mercurialization might be produced with as little delay as possible."

Detailed histories are presented of all the cases of puerperal convulsions which occurred in the Dublin Hospital during the period embraced in the report before us. Of these, *ten* were first pregnancies, and *three* were second pregnancies; *two* of these latter had had convulsions in their first labour, and in the third case, an interval of ten years had taken place since the birth of the first child. In *ten* cases, the convulsions came on *before* delivery, and in *two* of these, they continued *after* delivery; in *three* instances, the attack did not begin until after delivery. *Six* of the children were males, and *seven* females; of those born alive, *three* were boys, and *four* girls. *Six* of the women were delivered naturally; *four* by the crotchet, *two* by the forceps, and *one* by the vectis. *Three* cases terminated fatally.

Rupture of the uterus is the subject next treated of. The observations presented by our authors on this serious accident are particularly interesting. The circumstances they have been taught to regard as the harbingers of a rupture of the uterus are—

> "1. Where, from the history of the woman's previous confinement, we are led to suspect the existence of deficiency of space in the hard passages. Thus, if there had been considerable difficulty in each of her former labours, and that the children were dead born, or only the females born alive, these circumstances would afford tolerably certain evidence of the capacity of the pelvis being defective; and we believe it to be incontestable that this constitutes one of the most frequent predisposing causes of rupture of the uterus."
>
> "2. A fixed local pain existing in the uterus for any length of time, during pregnancy and up to the time of labour, should be viewed with apprehension, as it

may have been caused by some disorganizing process in the uterine substance, which will dispose it to give way under the expulsive efforts of parturition.

"3. During labour, the symptoms that might justly lead one to fear the occurrence of this accident, are, constant and violent uterine action after the rupture of the membranes and discharge of the liquor amnii, without any corresponding impression being made on the fœtal head."

"4. The occurrence of a crampy pain in some part of the lower belly."

"5. Cramps in the legs very generally accompany the violent uterine action before spoken of, and, along with other symptoms, are to be esteemed premonitory of the accident in question."

In the cases of threatened rupture of the uterus, that have come under the notice of our authors in the hospital, the object diligently aimed at was to moderate the inordinate violence of the uterine contractions, or to arrest them altogether, in the hope that they would return with less violence and more regularly. With this intention, a full bleeding was taken from the arm,—unless something was present to contraindicate it,—whilst the patient was in the erect position, and afterwards a tolerably large opiate was administered by the mouth, or, if this failed, an opiate enema or suppository was given.

"Before resorting to the employment of these remedies, tartar emetic solution was sometimes exhibited, as it very generally has the effect of diminishing the severity of the pains. By these means any degree of spasm will be removed, and the uterus may be brought to act in a more regular and normal manner; this will afford nature the fairest opportunity for surmounting the obstacle, and, at all events, will defer the period for resorting to instrumental delivery. Both experience and analogy lead us to believe that some of the muscular bands of which the uterus is composed, may be effected with severe spasmodic contraction, sufficient even to occasion laceration. Hence, the removal of such a condition is an object of no small importance."

The remarks of the authors on the treatment of cases in which a rupture of the uterus has taken place, are judicious, but present nothing peculiar or particularly interesting. The delivery of the child and secundines as speedily and gently as possible, is the first great object to be accomplished; this may be effected, in many cases, by the introduction of the hand and turning: delivery by the forceps can, our authors conceive, be very rarely eligible in cases of ruptured uterus, if it be true, as they remark, that the child dies very soon after the accident, and that the pelvis is generally under-sized in these cases. The Cæsarian operation they consider so very rarely necessary, as not to require that it should be particularly noticed. In the immense majority of cases, therefore, where the head does not recede after the rupture has taken place, delivery is to be effected by the perforator and crotchet.

Nine cases of laceration of the uterus occurred in the hospital during the period embraced in our authors' report, all of which terminated fatally. *Two* of the patients were delivered by the natural efforts; *one* by the forceps; *two* by the perforator and crotchet; and *four* by turning. In two of the cases where version had been performed, it was also necessary to perforate the head before it could be brought through the pelvis. In *one* instance the head presented; in *two* the face was towards the pelvis; and in all the others the vertex was the presenting part. *Eight* of the children were boys, all born dead, and one of them putrid; *one* child, a girl, was born alive. In *four* cases the accident occurred before the patients were brought to the hospital. *One* of the patients died in nine hours after the accident; *one* in fifteen, and *one* in sixteen hours;—*two* died on the second day; *two* on the third day; *one* on the fourth day; and *one* on the fifth day.

A detail is given of each of the nine cases.

The observations on plural births follow in order. From these we extract the following remarks, in reference to the management of twin cases; we believe the practice pointed out to be a judicious one.

> "The rules of practice that have been followed in the management of twin cases, we shall now briefly detail. After the birth and separation of the first child, the binder is applied with a moderate degree of tightness. A vaginal examination is then made, and if the second fœtus be found presenting favourably—that is, with the head or lower extremities—its membranes are forthwith ruptured. This is a slight deviation from the practice usually laid down by authors; but Dr. Johnson is of opinion that it is better to let off the liquor amnii at once than to wait any time before doing so; and we certainly think that this measure tends to produce a firmer and more permanent contraction of the uterus subsequently. Great faintness or exhaustion of the patient might render some delay advisable; but such a condition has very rarely occurred at this period. Should any part of the upper extremity of the second child present, the operation of turning ought to be undertaken immediately, before the pains have time to be renewed, or to have acquired much strength. If good uterine action did not come on within forty minutes or an hour after the rupture of the membranes, a stimulating injection was thrown up the rectum, and this, with a little friction over the uterus, seldom failed to increase the energy of the pains."

The authors state it as their conviction that, by steadily following these rules, the operation of turning, when the vertex of the second child presents, will very rarely be necessary, unless on account of some untoward complication.

The next subject to which the observations of our authors refer, is that of Funis presentations. The directions for their management are marked with good sense; we cannot spare room for any account of the plan proposed by the authors for the reposition of the prolapsed funis.

The two remaining sections treat, the one of ophthalmia neonatorum, and the other of the proper management of still-born children. The observations contained in both are excellent and of a strictly practical character; but the length to which we have already extended this review precludes our noticing them more fully.

In concluding, it is scarcely necessary to say that our estimate of the work of Drs. McClintock and Hardy is a very favourable one. Upon all the leading subjects connected with the practice of obstetrics, it presents a series of observations particularly interesting, because derived from direct clinical sources, sufficiently extensive and favourable for arriving at correct conclusions. We return our thanks to the authors for having thus presented to us the results of the practice of the Dublin Lying-in Hospital. Had they woven these into a formal systematic treatise on midwifery, they might perhaps have gained for themselves more éclat, but we doubt very much whether they would have conferred as much benefit upon the profession: we would sincerely desire that the medical inmates of all our public institutions could be induced to present the results of the observations there collected, and the practice there pursued, in the same unpretending form as that adopted in the work before us. D. F. C.

BIBLIOGRAPHICAL NOTICES.

ART. XII.—*Principles of Medicine: comprising General Pathology and Therapeutics, and a brief general view of Etiology, Nosology, Semeiology, Diagnosis, Prognosis, and Hygienics.* By CHARLES J B. WILLIAMS, M. D., F. R. S., Professor of the Principles and Practice of Medicine, and of Clinical Medicine, and First Physician to the Hospital, University College, London, &c. &c. Second Edition, considerably enlarged. London, 1848: 8vo. pp. 533.

DR. WILLIAMS tells us in his preface that "more than a year has elapsed since the first edition of this work was out of print." The same we believe to be true of the two editions through which the work has already passed in this country. The present edition contains very extensive additions, "comprising the enunciation and application of most of the facts and established deductions made available to the science and art of medicine during the last few years. These additions pervade almost every portion of the work; but they preponderate in the following subjects:—

"In Etiology, *mechanical*, *chemical*, and *dietetic causes of disease*, *defective cleanliness*, *ventilation*, and *drainage*. In Pathology, the tabular views of the elements of disease; *reflex action and sympathy; elementary changes in the blood; congestion; determination of blood; inflammation*, in its nature, manifold results and modes of treatment; *degeneration of textures; cacoplastic and aplastic deposits*, and their treatment, with a notice of the action of the *cod liver oil;* and the whole chapter on *Hygienics*, comprising *food*, *clothing*, *air*, *temperature*, *exercise*, *mental occupation*, *sleep*, and *excretion*."—p. vii.

In endeavouring to adapt the work to the rapid improvements in medical science, in very few instances has the author found it necessary to retract or supersede the inferences and views set forth in the first edition. On many subjects they have been confirmed and extended by recent researches to a degree which has not less surprised than convinced him of their truth. When these views were opposed to those generally held, Dr. Williams was led to test them more severely by all the experiments which physiology, clinical observation, and pathological research could supply. The result has been a firmer and clearer conviction of their substantial truth. The reason given by Dr. Williams in his preface to the first edition of his work, for its publication, still obtains, namely—"that there is no work [in the English language] which fully treats of the subject of General Pathology. and its application to practical medicine. * * * * With many excellent and elaborate treatises on the details of medicine, we have scarcely any that treat of those general principles in the nature and treatment of diseases, which are really fundamental in the practice of medicine." There is much truth in the following observations of the author:—

"It seems quite extraordinary that, notwithstanding the recent rapid improvements and comparative perfections of the contributory sciences, practical medicine should still halt in the domain of empiricism. A chief reason for the anomaly seems to be, that science and practice have been rarely pursued by the same parties. Scientific men are not and cannot be practical, because they have had no experience: and practitioners know little of science, and therefore derive little good from it. Instead of working together, these parties are at issue with each other. But it is high time to put an end to this feud. Philosophers must descend from their transcendental positions, to consider details of practice and purposes of utility. Those who would be practitioners must gain from science that knowledge and that method which render experience instructive and useful." —p. x.

The proper foundation of medical studies, the only basis of practical medicine, is *general pathology;* and Dr. Williams thinks, and justly so in our opinion, "that a chief reason why the practice of medicine has been commonly so distasteful, and so difficult in its study, and so unsatisfactory when tested at the bed side, is, because its foundation, *general pathology*, has not been efficiently taught." It is the connecting link between practical medicine and anatomy and physiology. Sound principles of medicine are the "embodiment of the results of experience in disease, with a knowledge of structure and function in health.

"The great proof of the practical utility of general pathology is, the aid which it gives in the study of clinical medicine, and the light which clinical medicine continually throws on it. The states which the practitioner has to treat are often too indefinite or too mixed to correspond with any of the definitions of special disease. They frequently consist of functional disorder, varying with time and circumstance, or changing its place, so as to present no fixed characters. But, compared by the pathologist with the standard of health, and analyzed from their complexity, their nature becomes intelligible, and their proper treatment obvious, so far as means are possessed to counteract or control that which is wrong."—p. 524.

Practitioners act more on general ideas of disease than on their knowledge of particular diseases.

"They feel the pulse and the skin, to guide them in the use of blood-letting, whether they have found out the special disease or not. They examine the tongue, and inquire as to the state of the evacuations, to guide them in the use of purgatives, under whatever complaint the patient labours. They consider the complexion and bodily strength in connection with dietetic measures; and the chief treatment of convalescence depends on rules suggested by general pathological knowledge."—p. 525.

"Throughout our examination of the details of disease, we shall find the principles of general pathology continually exemplified; and through these principles the mind can master the details to an extent wholly unattainable by those who pursue them as unconnected matters of fact. Those who begin the study of practical medicine by attempting to learn the details of diseases, are like those who would endeavour to master all the facts of chemistry without any knowledge of the general facts or laws of chemical action, affinity, and definite proportions: yet even in practical chemistry, or chemistry applied to the arts and manufactures, the most extensive and important services have been obtained from these very principles, applied to the details."—p. 529.

Participating fully in these views, we shall now enter into a somewhat detailed examination of Dr. Williams' "Principles," and permit our readers to judge of the manner in which he has acquitted himself of his important and, as we think, difficult task.

Chapter first treats of etiology, or the causes of disease. Dr. Williams discards the term *proximate* cause—used by Cullen, after Gaubius—as representing properly the pathological condition, and being rather a part of the disease than a cause; and he divides the *remote* into *predisponent* and *exciting* causes. He includes under the first head, the following:—1, debilitating influences; 2, excitement; 3, previous disease; 4, present disease; 5, hereditary constitution; 6, Temperament; 7, age; 8, sex; 9, occupation. The different subjects are cleverly, though succinctly, handled. The *exciting causes* are subdivided into *cognizable* and *non-cognizable.* The first comprise mechanical and chemical causes; ingesta; violent exertion: mental emotion; excessive evacuation; retention, suppression, and diminution of evacuations; defective cleanliness, ventilation, and drainage; temperature, and changes: the second, the endemic, epidemic, and infectious causes of disease, whose existence can only be inferred, and not proved. Our authors' views on these vexed questions are moderate, and will commend themselves to the reader.

Chapter second is devoted to *pathogeny* or *pathology proper*. As this subject occupies the greater part of the work, and possesses some claims to originality, it will be the chief object of our analysis. The aim and purpose of this portion of the book are thus explained:—

"Disease is a change from the natural condition of the function or structure of the body; but the change is generally more or less compound, involving several elementary functions or structures; and it is obvious that we cannot obtain an accurate knowledge of the nature of disease until we have ascertained that of its component parts. As the anatomist and the physiologist examine structures and functions by separating or analyzing them into their constituent parts, before he contemplates them in combination, so should the pathologist study these constituent parts, or elements, in *disease*, before he can understand their combinations.*

"The chemist, in the examination of his subjects, finds that there are some principles or elements that cannot be analyzed or divided further; these he calls ultimate or primary elements: others, again, are simple compounds, which may be analyzed: but they occur so constantly, and act so singly in compounding and giving properties to complex matter, that they are called proximate principles or secondary elements. A parallel case might be shown of physical science.

"So it should be with physiology and pathology. There are the healthy and diseased *primary* or *ultimate elements* of *structure*—muscular fibre, nervous matter, vascular fibre, and the elementary tissues of membranes, glands, skin, and other parts; and there are *primary elements*, healthy and diseased, of *function* of these same structures—irritability, tonicity, nervous properties, to which may be added, because at present we cannot analyze it, the power of secretion and nutrition; and lastly, the constituents of the blood. And there are the *secondary* or *proximate elements* of disease, composed of the preceding primary elements, but still simple in comparison with the complex conditions of disease which they combine to produce.

"The varieties of disease affecting these several elements may be comprehended under the heads of *degree* and *kind;* degree, including *excess* and *defect*, or alterations of *plus* and *minus:* and kind, relating to changes not comprised under these heads, but otherwise expressed by the term *perversion*. By applying these heads to the elements of structure and function, we obtain a simple and comprehensive classification, which embraces all the important topics of general pathology."—pp. 67–8.

"These primary and secondary elements of disease are the especial subjects of general pathology. By the study of them we become acquainted with the materials of disease, and their relations to each other; we learn how special diseases arise, and of what they consist: how they produce their phenomena and effects, how they are to be known, distinguished, and classified. Out of such a knowledge, where it is correct, sufficient, and combined with an ample acquaintance with the properties of remedial agents, arises the rational method of relieving, curing, and preventing disease, the great ends of the art of medicine.

"I readily admit that our knowledge of these elements or principles in pathology, is as yet too limited to be entitled to rank as a complete science; but I think that the attempt to describe and illustrate them will be useful, not only by making available all that is known on the subject, but also by showing what is not known, and needs investigation: thus suggesting fit subjects for further research."—pp. 69–70.

Under the head of functional or dynamic diseases, the first of the primary elements noticed is muscular irritability. This may be *excessive*, constituting spasm or convulsion; or it may be *defective*.

Section second treats of tonicity. Our author defines this property of all muscular structures, and of some which are hardly accounted muscular, as "a tendency to slow, moderate contraction, not essentially terminating in relaxation;" and keeping "the parts in which it resides in a certain degree of tension."

"This tone keeps muscles and limbs in their places when at rest, and out of their places when dislocated: if one set of muscles is paralyzed, the tone of their antagonists draws the parts in an opposite direction, as we see in paralysis of the portio dura on one side of the face. A similar property is possessed by the intestinal tube, the urinary bladder, the air tubes, and the middle coat of the arteries, and gives them a constant tendency to contract on their contents. In these, but particularly in the arteries, it performs an important part, both in health and in disease. By this the arteries contract, when they cease to receive blood from the heart, and thus are found empty after death. It adapts them to different degrees of fulness, yet maintains in their walls a certain tension favourable to equality in the motion of the blood."—p. 74.

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* "A neglect of this precept has greatly retarded the advancement—nay, even the formation—of pathological science. Men have begun with the very complex problems of *inflammation* and *fever*, before they have made themselves acquainted with the elementary properties of textures, or even of vessels. The result has been, that the most profound reasoning and ingenious speculations have been wasted on nonentities, such as spasm of the extreme vessels, increased action of the capillaries, &c.: and even observation has been confused by the complexity of the subjects brought under it."

The distinct property of tonicity and irritability has been asserted, and it is said that though irritable fibres possess tone, tonic textures are not irritable.

"This," says Dr. Williams, "is not true with regard to the arteries: for I have many times distinctly seen them slowly contract, and remain contracted, at a point to which an irritant, mechanical, chemical, or electric, has been applied. The late discovery, by Henle, of a structure distinctly muscular in arteries, confirms this observation. I have proved, in like manner, the irritability of the air tubes, which move more rapidly under a stimulus than the arteries; whilst that of the intestines is still higher in degree, but still inferior to that of the œsophagus and voluntary muscles, the contractions of which, on the application of a stimulus, are abrupt, and immediately followed by relaxation. So far, then, it appears, that tonicity is influenced by the same agents which excite irritability; but another agent, temperature, seems to affect them differently. Cold increases tonicity and impairs irritability. Under the influence of cold, vessels generally, but especially arteries, shrink in size very remarkably; and the muscles and other textures present a firmness and contraction which impede the quickness of motion characterizing the highest degrees of irritability. Under the influence of heat, on the other hand, although muscles are relaxed, they are more irritable, and the pulsations of the heart are more frequent.

"Cold and heat, therefore, become the best tests for tonicity; and by their means we find this property to be possessed by textures which are not distinctly muscular; I mean, the veins and the cutis, which in a remarkable degree contract with cold, and become relaxed with heat."—pp. 75–76.

Tonicity is an important property in the animal economy, the preservation of health often depending on its integrity, its modifications being peculiarly felt in the vascular system.

"Practical men have long admitted the existence of something of this kind, without defining or localizing it: and the terms tone and atony, bracing and relaxation, tonic and relaxing remedies, become quite appropriate in connection with this property."—p. 76.

Excessive tonicity is caused by an over-nourishing and stimulating regimen, with insufficient exercise; a dry bracing air; tonic medicines: the excitement of fever, &c. In inflammatory fever, excessive tone of the vascular system is a chief constituent. The remedial measures are those which relax the tonic fibre, and increase the secretions, as warm bathing, exercise, sudorifics, aperients, diuretics, and moderate diet, with probably antimony.

In *defective* tonicity, the muscles are flabby, and incapable of continued exertion, though sometimes irritable, with the tremulousness of debility. The heart is irritable, and easily excited to palpitation; the pulse soft and yielding; "it may be full when slow, and sharp when frequent; but it is without firmness or endurance and is easily accelerated. Another distinctive character is its retardation, increasing the interval between the heart's beat and distant pulses; so that the radial pulse is often felt after the second sound of the heart is heard; the tubes being less tense, the pulse-wave is slower than usual. Sometimes the absence of that tightening of the walls of the arteries by which the tonic fibres control their movements, permits their mechanical elasticity to come into play, and this reacting after each stroke of the heart gives that peculiar reduplication or rebounding of the pulse, which has long been described under the term *dichrotous* pulse. This is often observed in convalescence from fevers and other diseases after the subsidence of vascular excitement. A loose relaxed state of the vessels renders the circulation in distant parts weak, so that the extremities are cold, whilst the head and internal organs may be congested. Sudden exertion or change of posture may disturb the circulation and cause faintness or giddiness. Want of tone also in the stomach and intestines causes indigestion and costiveness, and permits them to become distended with wind and accumulating feces. The secreting organs, irregularly supplied with blood, are also liable to disorder, being either scanty, depraved, or profuse and watery."—pp. 77–78.

In individuals with the system in such a state of atony, there is decided proclivity to certain diseases. There is no power to resist depressing agents, as malaria, infection, &c. On exposure to cold, the blood is quickly driven from the surface to the internal organs, causing congestion and inflammation.

"The proper remedies for defective tonicity are tonics, which are agents that tend to increase the tone of the whole system, particularly of its muscular and vascular parts. We have already stated that cold has this effect in a marked degree, and in truth, cold, properly applied, is one of the best tonics which we possess. For this purpose its application should be sudden and too brief to cause depression or any of its morbid effects. The shower-bath and plunge-bath are the most effectual forms; and free sponging, with cold salt water, is applicable even to weak subjects. A pure bracing air and much exposure to it, with moderate exercise, have also useful tonic effects. There are many medicinal tonics, the most effectual of which are bark and its preparations, medicines containing iron, and the mineral acids. Generous living may be considered a part of a tonic plan, in so far as it tends to enrich the blood, which sustains tonicity as well as all other vital properties."—pp. 78–79.

In the third section, on diseased sensibility, Dr. Williams holds this language:

"An anodyne influence more powerful in degree, than that induced by any other agent, although transient in duration, is that resulting from the inhalation of the vapour of sulphuric ether, which has during the last year been extensively used, first in America, and subsequently in this country. The operation of this agent, and of nitrous oxide gas (which has a similar effect), is on the sensorium, rather than merely on the sensitive nerves. In most instances, if continued for a sufficient time, it induces complete insensibility, so that the subject may undergo the most severe surgical operation, and a female may go through the process of parturition, without suffering any pain. In many cases, however, especially where the inhalation has been less prolonged, or less impregnated with ether, sensibility is blunted, but not destroyed, and the patient makes movements and may utter expressions indicative of slight pain, yet has no recollection of it when restored to consciousness. The memory seems to be more affected than the perceptive function. The power of voluntary motion is suspended in about the same ratio as sensibility; but the reflex motions of the eyelids, breathing, &c., are lowered but not abolished, unless the inhalation be continued so long as to induce complete asphyxia.

"The operation of ether vapour is obviously narcotic, like that of opium and alcohol; and is more speedy and transient, because it passes freely and directly through the lungs into the arterial blood and affects the brain, and is as promptly dispersed by its diffusion throughout the body. It has been maintained by many, that it operates by its interference with the respiration, inducing a degree of asphyxia; but so far is this from being the case, that its best effects are produced when the respiration is steadily maintained; and it has always appeared to me that the end to be aimed at in the administration of ether-vapour, is to narcotize, as far as possible, without too much embarrassing the breathing. This is difficult to accomplish without a freer supply of oxygen than atmospheric air contains; and I should expect safer and more satisfactory results from the inhalation of a mixture of ether-vapour with oxygen gas, which might be continued with safety for a much longer period than with the vapour and air only.

"Although the chief influence of etherization is transient, yet by saving the nervous system from the shock of intense temporary pain during an operation or paroxysm of suffering, it often prevents that consequent nervous irritation and exhaustion which is as injurious to the vital powers, and which favours the return of the painful attack. Thus in neuralgic and painful spasmodic affections, the removal of one or more paroxysms by etherization may break the habit of diseased action, and effect a permanent cure."—pp. 81–82.

Sections fourth and fifth are on diseased voluntary action, and the diseases of reflex and sympathetic nervous influence. Though short they are highly instructive, and exhibit the thorough and correct knowledge of the author of the physiology of the nervous system.

In the sixth section on secretion, Dr. Williams says:

"I have for the last twenty years* advocated the opinion recently advanced by Dumas and Liebig, that the formation of the principles of the chief secretions takes place through chemical affinities, especially those of the absorbed oxygen and the constituents of the blood, controlled by vital agencies; but this view leaves still as a vital property the power which the liver has to separate bile; the kidneys, urine; mucous membranes, mucus, &c.

"We are thus led to consider secretion as a peculiar property of the secernent structures, just as irritability is of muscular fibre; and as such its disorder constitutes a primary element of disease. In doing this we avoid the hypothesis of some physiologists, who ascribe secretion to nervous influence, a notion by no means accordant with numerous facts."—pp. 100–1.

The influence of the blood—the material from which the secreted matter is supplied—on the quantity and quality of the product, as well as that of the nervous system, are mentioned as important elements in derangement of the process. The effects of *excessive* secretion are both *forwards* and *backwards.*

"The *forward* effects of an excessive secretion of bile depend on its stimulating properties. It irritates the intestinal tube, causing a bilious diarrhœa or cholera. The symptoms of this consist in an exaggeration of those properties of the alimentary canal which have already been described as elements of disease. Thus the bile irritating causes increased irritability, and more rapid motion of the matter through the tube; pain from exalted sensibility; vomiting, straining, and cramps, from exalted excitomotory function; profuse mucous secretion from excited secernent function."

"But excessive secretion may also have effects *backwards*, on the *organs*, and on the *blood* from which it proceeds. Excessive secretion often weakens the vital properties of the *organ*, so that, in its proper function, it subsequently becomes torpid. Thus after diarrhœa the bowels often become torpid from defective secretion. So, too, in cases where an excessive secretion continues for a long time, it generally is impaired in its quality from a similar cause.

"Excessive secretions, if abounding in animal matter, may not only reduce the mass of the blood, but also affect its composition. Thus bile and urine, which differ much in composition from the blood, if separated in unusual proportions, must leave the blood modified. Urine contains a great preponderance of azote; and its excessive formation from the principles of the blood would leave a predominance of hydrogen and carbon in this fluid. The bile, again, abounds in hydrocarbon, the copious removal of which would leave a superfluity of azote. It may be objected to this statement, that according to the opinion of some chemists, the urine and the bile are not formed from the constant elements of the blood, but from materials derived from the food, and from the decay or transformation of the tissues. To this it may be replied, that this opinion is at present no more than hypothetical; and should it prove to be true, it would not affect the undoubted fact, that the secretions of the liver and of the kidneys are intended to balance one another, and the removal of carbon from the lungs; and that whether the materials from which these eliminating processes are supplied be the principles of the blood itself, or the decayed constituents of tissues, or matters derived from the food, the co-operation of all these processes will be generally required to maintain a uniformity in the composition of the circulating fluid; so, too, if one of these processes is more active than the others, the blood must suffer by the excess of those matters which the less active processes allow to accumulate in it. A clinical illustration of this position may be found in cases of bilious diarrhœa or cholera. This flux of bile is either accompanied by a highly loaded state of the urine, or by fever; in the latter case, the fever does not subside until the urine becomes very copious, or deposits an abundant sediment. The most probable interpretation of this fact is, that the excessive secretion of bile disorders the composition of the blood; so long as the kidneys rectify this disorder by separating, in greater abundance, the solid contents of the urine, no fever results; but if the kidneys fail in this task, fever ensues, and continues until they accomplish it; then a free secretion and copious deposit is symptomatic of the decline of the fever."—pp. 102–3.

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* In a thesis, *De sanguine ejusque mutationibus*, Edin. 1824. See also Med. Gaz., September and October, 1835.

The morbid effects of *defective* secretion may be, also, both *forwards*, on the parts for which the secretion is intended, and *backwards*, on the organ and on the blood from which it should be eliminated.

"The most remarkable of the *backward* effects of defective secretion are instanced in case of the excretions. The distinctive materials of the secretions of urine and bile appear to be positively noxious, and poison the system if not separated from the blood. Thus the sudden suppression of urine or bile causes typhoid symptoms, extreme depression, and coma, which speedily end in death; and, in such cases, urea, or the colouring matter of the bile, has been found in various organs. Where the suppression is incomplete, the poisoning process is more tardy; various functional and visceral derangements are produced, such as delirium or lethargy, dyspnœa, palpitation, vomiting, diarrhœa, dropsical effusions, structural degenerations, &c., which always cause injurious effects, if the defective excretion be not restored. But the amount of these effects will depend on the extent, and especially on the suddenness of the diminution of the excretion; and it is very remarkable when it is very gradual how little disturbance it may for some time induce. In these gradual cases, still more remarkably than in those of more sudden suppression, some of the excrementitious matters may be detected in the blood and in other fluids and solids of the body. Thus in some structural diseases of the liver, the colour of the bile becomes manifest, first in a yellow, and by accumulating, in a deep greenish colour in all the textures, constituting the yellow and the black jaundice. In granular degeneration of the kidneys, in which scarcely any urea is excreted by these glands, this principle is found in the blood and various fluids of the body. In the case of a patient of mine affected with ascites from disease of the heart, liver, and kidneys, Mr. Garrod obtained nearly four grains of nitrate of the urea from an ounce of the peritoneal fluid, and a considerable quantity of bright yellow solid matter, probably bilious. In other cases I have known the fluid of ascites and anasarca from diseased kidneys emit a decidedly urinous smell, and exhibit on analysis easily appreciable quantities of urea. One of my pupils, Mr. Palmer, detected urea in the serum contained in the ventricles of the brain, in a case of fatal apoplexy from granular kidneys and diseased heart."—pp. 106–7.

In idiopathic fevers, the excretions are frequently defective, and many of the constitutional symptoms in this class of diseases are no doubt due to this cause. During the Edinburgh epidemic of 1843, crystals of the nitrate of urea were obtained from the serum of the brain, and from the blood, in several cases, by Dr. Henderson and Mr. M. W. Taylor.

"There can be little doubt that a morbid element, which in its extremes acts so injuriously as to cause serious disorder, and even speedy death, must in slighter degrees be an important cause and constituent of disease; and I believe that gout, rheumatism, and many cachectic states leading to diseases of nutrition, degenerations, dropsies, &c., are essentially connected with defective excretion."—p. 107.

In speaking of the special stimulants of the secreting organs, it is properly observed, that, "if used in excess, or too long, may not only cause general weakness, but also exhaust the vital properties which they excite; and the result may be a diminution either of the secreted fluid, or of its most characteristic constituents. Hence the long or excessive use of mercury causes torpidity of the liver; that of purgatives, imperfect action of the bowels; that of diuretics, scanty urine, or albuminous or watery urine, defective in urea. These facts point out the expediency of intermitting the use of these agents, and of alternating or conjoining them with others calculated to improve the vital properties of the textures generally, which may often be effected by the medicines called tonic, and by regimenal means which improve and equalize the state of the circulation, and preserve the digestive and assimilative functions in the best order. In illustration of this position, I may refer to the acknowledged advantage of giving bitters with or after mercurial courses; chalybeates with or after saline aperients and diuretics, when these are long used; and these additions, which alone, or used at first, would check the secretion to be increased, now sustain it and render it permanent. Some medicines which are inferior in efficacy to those already named, are yet, in some instances, more eligible for chronic cases of defective secretion: because they are less exhausting, and combine some measure of tonic influence with that of increasing the secretions. As examples of this kind may be named taraxacum, preparations of iodine, sarsaparilla, nitric and nitro-muriatic acids. Courses of these medicines are sometimes of great efficacy in keeping free the secretions after they have been restored by more powerful means; and they likewise often improve the functions of digestion and nutrition."—pp. 108–9.

The diseases of the constituents of the blood is begun in the seventh section, and continued through the eight remaining ones of the chapter. These sections are amongst the most important and valuable in the work, and we especially recommend them to the reader. They are admirably executed. The subject is fully through concisely treated.

Treating of the morbid changes of the blood, Dr. W. observes:

"These, like those of the solids, may be often traced to individual elements, of which the blood is composed, the changes of which must be viewed as ultimate elements of disease, and are therefore properly included in the present division. But as the blood also operates as a whole, compound indeed in itself, but simple in its influence on vital functions and structures, it forms a proper connecting link between *ultimate* and *proximate* elements of disease. So, also, inasmuch as it is, in some respects, an organized compound, the materials of which are changed, together with its functions, and contributes to the production of change of structure in the solids of the body, the consideration of its changes will be a proper introduction to that of alterations in the circulation, which induce changes of structure, and thus lead to structural diseases themselves."—p. 111.

The properties of the circulating fluid are first examined with reference to those which are most elementary, or to its respective constituents. "We have, then, to consider—

1. The red particles,
2. Fibrin and colourless globules,
3. Albumen and other dissolved animal matters,
4. Oil,
5. Salts,
6. Water,

in excess, defect, and alteration."

In speaking of the alterations in the colour, shape and size of the red corpuscles in connection with the medium, Dr. W. says:

"It is highly probable that similar changes may take place in the living body, from circumstances which greatly alter the proportion of saline matter and water in the blood. May such change contribute to produce the serious symptoms, and even sudden death, which have ensued on drinking a large quantity of water after great exertion? Has it aught to do with the reaction and irregular excitement sometimes occurring after excessive losses of blood? Or with the symptoms of suffering which animals manifest at the instant of injecting water into their veins? Dr. Owen Rees has suggested that the remarkable diminution of the blood discs in cases of albuminuria may be due to their destruction in consequence of the draining away of albumen from the blood, and thus reducing it to a very watery state; and the same circumstance may prevent their development from the chyle and lymph, both in these cases, and in chlorosis. In several cases of Bright's disease of the kidney I have observed the blood discs jagged or crenate at their margins, and otherwise imperfect; and the same remark has been made by Simon of Berlin and others, and by Andral in a case of chlorosis. In one fearfully rapid example of albuminuria, which proved fatal in six days, with effusion of pus in the joints the day before death, I found the colouring matter dissolved in the blood-liquor after death, and scarcely any red discs remaining. There were numerous pus globules in the blood. A similar total destruction of the blood discs was observed in University College Hospital in the blood of a person who died of malignant scarlet fever with purpura. I have met with similar proofs of breaking up of the red particles, but to a much smaller extent, in acute purpura connected with jaundice, and in cases of disturbed function of the liver without jaundice; is this due to the remarkable solvent power exercised by small proportions of bile on the red particles, noticed by Simon and others?"—pp. 114–15.

The same broken condition of the red corpuscles was noticed by M. Renzi, of Naples, in an epidemic typhus which prevailed in certain districts of Italy, in 1841, as well as in the Edinburgh epidemic fever before alluded to.

The section on the changes of the blood from the transformation of chyle and of the textures, including the processes of nutrition and reparation, is particularly valuable from its suggestive character, and from the intrinsic importance of the subject. Most pathologists now regard gout to depend on the accumulation in the system of an excess of lithic acid. This view, inferential previously, has recently been demonstrated to be correct, in the case of a patient of the author in whose blood lithic acid was detected. There was total absence of lithic acid in the urine, until during the exhibition of colchicum, when its characteristic crystals appeared under the microscope. The pathology of both gout and saccharine diabetes is admirably given, and we regret that we cannot transfer it to our pages. The treatment indicated is sound and discriminating. We have room only for the concluding paragraphs.

"In the effect which each exerts on the economy, there is a great difference between the morbid matter of gout and that of diabetes. The sugar in the latter has no tendency to accumulate in the system and produce local effects; but, acting as a powerful diuretic, it passes rapidly away, carrying with it a great quantity of water and of the other constituents of ordinary urine; and the thirst, dry skin, and emaciation of diabetes, seem to be chiefly due to this mode of operation. The common complication of diabetes with pulmonary consumption shows also, however, that the plastic process is degraded.

"The lithic acid of gout and gravel, on the other hand, has a tendency to accumulate in the body, and to cause the local and general irritations which have been already mentioned. Hence it becomes a chief indication to counteract its irritating properties, and to promote its elimination from the system. The medicines which are most efficacious in doing this are alkalies, or their carbonates, or their vegetable salts, with colchicum, or iodide of potassium, saline mineral waters, and alterative aperients. These all increase the action of the kidneys and intestinal canal, and drain off the offending matter from the system; but the operation of colchicum is far more certain than that of the others; and its permanent efficacy depends on its continued action on the kidneys in particular."—pp. 156–57.

Chapter third is occupied with the consideration of the secondary or proximate elements of disease, consisting of two or more primary elements. "They comprise, at least, three of the *primary* elements which have been considered—the blood and its constituents, the irritability and the tonicity of the organs concerned in its distribution."

Anæmia is the first of these conditions treated of. The most common causes of general anæmia Dr. Williams considers to be irregularity of the menstrual function.

"It might seem difficult to understand," he observes. "how the last operates; but that in many cases it is a cause and not an effect of anæmia, is plain from the well-known fact that no signs of anæmia have occurred until cold, over-exertion, or mental excitement, or some circumstance, has suddenly checked the flow of the catamenia; it has not returned; and then the patient begins to lose colour, and gradually to exhibit the anæmic state. In many cases I have known this occur in young females who have previously suffered from acute rheumatism, implicating the heart. It would seem that in these cases some injury is done to the blood particles and to the powers by which they are repaired: this is manifest not only from the pallidity, but from the yellowish and almost greenish hue which the complexion sometimes presents, and which obviously depends on a discoloration of the textures by the altered blood, as in the neighbourhood of a bruised part. The nature of these changes has been already noticed. In some of these cases of chlorosis, the appetite is depraved; there is such a complete disrelish for animal food and other nourishing articles, and such a craving for sour things, and even for matters destitute of nourishment, as chalk, cinders, &c., that it might be supposed that this perverted appetite is the cause of the anæmia, by deterring the patient from taking that food which is capable of making red blood; and undoubtedly such an appetite, when indulged, must contribute to this result; but it is not so constantly present as to be considered the chief cause of the anæmia in the examples under consideration."—p. 163.

Though the general symptoms of anæmia are those of weakness, still it is often accompanied by others of an opposite character, and which lead the inexperienced practitioner into error. Instead of depression there is irritation and exaltation of function, particularly in the nervous system.

"Sensibility is sometimes acute; there is intolerance of light and sound, with flashes in the eyes, noise in the ears, a sense of rushing in the head, and various neuralgic pains. The excitomotory nerves are sometimes excited, and spasms or convulsive affections of different kinds may be present, or the organic functions may be affected, and palpitation, spasmodic asthma, vomiting and such sympathetic irritations, may occur. In a few instances, anæmia has been attended with delirium, or mental excitement bordering on it.

"It thus appears that the functions which frequently are thus excited in the midst of general depression and weakness, are those of the nervous centres; and the generally nervous character of persons in a state of great weakness is connected with the same fact, so that *nervousness* and *weakness* are almost synonymous terms. No explanation of this apparent anomaly has been to my knowledge proposed; but one seems to suggest itself in the peculiar distribution of the circulation through the nervous centres. When the mass of blood is reduced in quantity, the blood-vessels generally contract in proportion, their tonicity adapting them to the amount of their contents. But the vessels within the skull and spinal canal cannot contract with the same facility, for not being exposed to atmospheric pressure, and some of them being fixed in bony canals, they do not shrink as the blood becomes reduced, and therefore they retain more than their proper share of the circulating fluid.* This disproportionate amount of blood in the nervous centres produces different effects, according to the degree in which the heart's propulsive power reaches it. Under the influence of temporary palpitation, fever, or other kind of excitement, the brain and spinal cord, through their uncontracted vessels which are among the nearest to the heart, receive an unusual share of its exalted but partial force; an erethism of some one or more of the functions of these nervous centres is the consequence; and pain, spasm, sensorial excitement, intolerance of light and sound, or sympathetic irritations of some kind or another, occur.† In this condition the head may be hot and throbbing, the face flushed, the eyes suffused, whilst the extremities and the surface generally are comparatively bloodless, and either cold or very speedily becoming so on exposure. Epistaxis sometimes occurs, and although bringing momentary relief, may, if considerable, add to the evil, by increasing the anæmia."—pp. 165, 6, 7.

But the heart may be too enfeebled to propel onward the blood accumulated in the cerebral vessels, particularly the veins. Congestion of this organ is a necessary result; and we accordingly have "headache and giddiness, relieved by the recumbent posture, drowsiness, impaired mental faculties, obscured vision and hearing, partial paralysis, and, in extreme cases, coma or catalepsy."—p. 167.

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* This statement is not invalidated by the recent experiments of Dr. G. Burrows, (Med. Gaz., April, 1843.) His experiments and expositions very satisfactorily demonstrate the absurdity of the notions, founded on Dr. Kellie's paper, that the quantity of blood in the head is always the same; but it remains clear that the circulation within the head and spinal canal, especially in man, is affected by losses of blood differently from the circulation in other parts.

† Although the chief effect of excitement of the circulation in anæmia is thus directed to the nervous centres, it is by no means confined to them. Other parts in the immediate vicinity of the heart become the seat of increased arterial pulsation and disturbance. Thus a painful throbbing is often complained of in the throat, chest, and epigastrium even when there is little pulse in distant arteries, and the extremities are cold. To understand these facts, we must bear in mind that when the arteries are full and tense, they oppose their fulness and tension to each contraction of the heart, which resistance reduces the strength of each pulse in the vicinity of the heart, although it continues to propagate it to a distance; but when the arteries are empty and loose, the heart squirts into them the blood in an unresisted jet, the force of which is strong near the heart, but extends not to distant arteries.

"This congestion may be only temporary, and lead to no serious results; but in some cases I believe there occurs an event that has not been noticed by pathologists—namely, a coagulation of the blood in the sinuses, and a consequent permanent obstruction to the passage of the blood through the brain. I have met with several cases more or less corresponding with the following description.

"A young female becomes anæmic, and after exhibiting various symptoms of feeble general circulation, with headache, drowsiness, and impaired sensorial functions, suddenly becomes worse; passes into a state of stupor with dilated pupils, sometimes varied by slight manifestations of delirium, throbbing of the carotids, and partial heat of the head, and dies comatose. On opening the head, a small quantity of serum is found under the arachnoid and in the ventricles, sometimes with a little lymph (in one case there was none). The vascularity of the membranes is remarkable, but the vessels most distended are the veins, and in the larger of these and in the longitudinal sinus, there is a firm coagulum. In parts, especially at the torcular Herophili, this coagulum blocks the whole sinus, and exhibits a separation of fibrin, portions of which are softened down into that opaque purilaginous matter which was long mistaken for pus, but which Mr. Gulliver has shown to be a mere disintegration of the fibrin which mere stagnation in a warm temperature may effect. These have been taken for cases of meningitis. No doubt inflammation may supervene in them occasionally, but in two cases that have fallen under my notice, there was no adhesion of the arachnoid nor deposit upon it, nor any other unequivocal mark of inflammatory action; yet the fibrinous and bloody concretions in the veins and sinuses were most remarkable for their size and firmness."*—p. 167.

We pass to the next division *Hyperæmia* or *Excess of Blood.* Several conditions are included under this head. A view of these important proximate elements of disease is given in the following table.

HYPERÆMIA: Excess of blood.	General=Plethora	with motion increased=Sthenic	RESULTS.
		— — diminished=Asthenic	Hemorrhage.
	Local	with motion diminished=Congestion	Flux.
		— — increased=Determination of blood	Dropsy, &c.
		— — partly increased, partly diminished=Inflammation.	

After treating of Plethora, *sthenic* and *asthenic*, Dr. Williams passes to the consideration of Congestion, or local hyperæmia, with diminished motion. We cannot now discuss the theoretical portion of this section, and though not disposed to give our unqualified assent to all the views of the author on this subject, still we regard them as generally sound.

The symptoms and effects of Congestion are detailed with great clearness and precision, both as regards the local effects, and those on the system at large. As a specimen, we extract the following regarding the pathology of Bright's disease:—

"I have for several years referred albuminous urine to congestion of the kidney; and this view has been lately confirmed by some experiments by Mr. G. Robinson. The following considerations led me to entertain this opinion:—1. The urine often becomes albuminous during great embarrassment of the circulation in cases of organic disease of the heart or lungs, when the kidneys are otherwise healthy. 2. I have in many instances observed temporary albuminuria during the cold stage of ague, and the congestive stage of eruptive fevers. 3. In granular degeneration of the kidney, the amount of albumen in the urine is augmented by circumstances causing congestion of the kidney, and is reduced by remedies suited to remove this. 4. The most common form of Bright's disease of the kidney in its earliest stage, presents the appearance of a highly congested structure, and is excited by causes calculated to produce congestion, such as frequent irritation of the kidneys by stimulating liquors—congestion from exhausted tone; continued exposure to cold, especially after the kidneys have been thus excited—congestion from intropulsion; scarlatina probably operates as the two last combined. 5. The albumen in the urine abounds most in the congestive (first) stage of Bright's disease—the vessels becoming more or less obstructed in the progress of the disease by a deposit of fibrin with granular cells in the tubules, and in some instances around them, which deposit at the same time perpetuates some degree of congestion, whilst it supersedes the proper secreting structure." —p. 193.

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* A wax model of the sinuses and membranes in one of these cases is in the museum at the University College. Cruveilhier gives a representation of a similar case, which, without sufficient reason, he considers as one of cerebral phlebitis. Andral mentions a case of cerebral hemorrhage in connection with anæmia, which was probably of the same kind.

The remedies indicated for the treatment of congestion are judicious.

Section fifth treats of local hyperæmia, with increased motion, or determination of blood. There is nothing here that need detain us, though the section is an admirable one.

The results of hyperæmia, as hemorrhage, flux and dropsy, occupy the succeeding section. It teaches right doctrine, and will be read with advantage. The soundness of the following remarks on the treatment of dropsy depending on visceral disease, cannot be disputed.

"The tendency of dropsy connected with diseased heart, kidneys, or liver, to recur again and again, and become chronic, renders it needful to vary as much as possible the remedies employed, as well as to use means to support the strength. It is an important point in the treatment of such cases not to exhaust the powers of any secreting organ by too long acting on it, and not to expend the efficacy of any one remedy by too long continuing its use. By employing sometimes diuretics, sometimes purgatives, sometimes diaphoretics, and by aiding each of these, by local depletion or derivants, or by stimulants and tonics, according to the temporary prevalence of vascular fulness and excitement, or the converse, much may often be effected to prolong life. It is in the application of these rules to the treatment of prolonged cases, that the skill and resources of the rational practitioner are most tried, and his superiority over the routinist is best proved. It is under these circumstances, too, advantageous to have at command a great variety of medicines, particularly diuretics, and to alternate them or vary them in order to increase or maintain their effect. Those that I have found most effectual are—combinations of mercury, squill, digitalis, and conium (not in acute albuminuria); combinations of decoction of broom, or pyrola umbellata, with nitrate and acetate of potass; the juice or extract of taraxacum, with the same salts or bitartrate of potass, or with nitric acid (particularly in hepatic disease); infusion or tincture of digitalis, with iodide of potassium, and bitartrate of potass (in dropsy after scarlatina); the same, together with increasing doses of tincture of cantharides (in asthenic cases of albuminuria, after cupping to the loins and hydragogue purgatives); ammonio-tartrate and ammonio-citrate of iron in Seltzer water (in asthenic dropsy); gin in cream of tartar beverage (imperial); compound spirit of juniper, spirit of nitric æther, with various others (in cases of debility). The latter stimulant diuretics have disappointed me more than any of the rest."—pp. 241–242.

The seventh section is the most elaborate in the work, both theoretically and practically; it is an exposition of the important subject of *inflammation*, in all its phases and varieties: a subject which has always attracted the first attention of the pathologist.

The pathological definition given by Dr. Williams to distinguish inflammation from the other varieties of hyperæmia is—"*too much blood in a part, with motion* (of that blood) *partly increased, partly diminished.*"—p. 244.

"But besides this pathological definition, its outward characters may be briefly defined in the four signs which, from the time of Celsus, have been considered distinctive of inflammation, *redness*, *heat*, *pain*, and *swelling*. These signs are sometimes produced by congestion, and by determination of blood; but in a degree less marked, and for a time less continued, than in inflammation; and although there are cases and forms of inflammation in which it is not possible to detect all these marks, they may still be said to constitute its most general character. In common with other varieties of local hyperæmia, inflammation owes the sign of redness to the excess of blood in the part, but we shall find that this redness is heightened by a peculiar concentration of the particles in the inflamed vessels, which is also the cause of the peculiar results of the process. As in determination of blood, the heat and pain are in part due to the increased motion of the blood; but in inflammation, they are exaggerated by the motion being opposed to obstruction. As with other forms of hyperæmia, the swelling arises partly from the over-distension of the blood-vessels, and partly from effusions from them; but in these effusions, inflammation differs from congestion and simple determination, departing still further than these from the natural quantity and quality of the effused matters."—pp. 244–245.

It has been the custom to refer the first movement of inflammation to the nerves. Dr. Williams adduces the following arguments to show that an impression on the nerves is not essentially a part of the first process of inflammation.

"1. Some of the causes of inflammation (the majority of those inducing internal inflammation) produce on the nerves or nervous system no known primary effect, which resembles that of other causes of inflammation (irritants): thus, inflammations excited by cold are often preceded by no marked nervous disturbance; whereas the strongest impressions of cold on this system are frequently not followed by inflammation. 2. Inflammations often originate in congestions, and in the sudden suppression of hemorrhages and other discharges, without the occurrence of any symptoms referable to the nerves: hence inflammations thus arising may escape detection, and are called *latent*. 3. Persons in whom nervous properties are most developed, are not those most susceptible of inflammation; and all varieties of nervous excitement are sometimes manifest in the highest degree without any inflammation ensuing. Even where pain and other nervous symptoms are excessive, and are the result of mechanical or chemical injuries (such as crushed limbs, extensive burns, &c.), inflammation sometimes does not follow; and this has led surgeons long to distinguish between irritation and inflammation. 4. Inflammation readily occurs in parts, the nerves of which are paralyzed or have been divided."—pp. 249–250.

"So far as it is known, the blood-vessels are the essential seat of the whole process of inflammation; and although some of the exciting causes of inflammation (irritants), act on the nerves as well, yet others operate chiefly and essentially only on the blood-vessels. Hence we find that the causes predisposing to inflammation are circumstances chiefly affecting the vascular system."—p. 250.

Having traced the essential operation of the causes of inflammation to be on the blood vessels and their contents, Dr. Williams next proceeds to the inquiry of "what is the character of their operation on the vessels, and what phenomena it develops."

That the blood vessels are enlarged in inflammation is obvious to the most superficial observer, and has been proved by the experiments of Hunter, Alison, and others; but such is the case, too, in congestion. In what respect then does inflammation differ from congestion, and in which also the vessels are enlarged?

"It differs not only in the accompanying symptoms and in its products, but also in the observed condition of the vessels of the part. Thus besides greater pain and heat in an inflamed part, and earlier and more abundant effusions into or from it, the more florid hue of redness, the strong beating of the arteries leading to the part, and augmented quantity of blood flowing from its veins, clearly indicate that there is increased motion of the blood, instead of diminished motion, as in congestion."—p. 251.

It is certain, from the observations of Lawrence and others, as well as from direct observation with the microscope, that the vessels in the vicinity of the inflamed part are the channels of an increased flow of blood; but if this were all, there would be no distinction between determination of blood and inflammation.

"Microscopic research has established one great point of difference. The observations of Thomson, Hastings, Kaltenbrunner, and Marshall Hall, have long clearly proved that there is more or less *obstruction* to the passage of the blood in the vessels most inflamed. Thus in the frog's web, when a part inflames from local irritation, the blood is seen to move more slowly in the part most irritated, and gradually accumulating in the vessels, renders them larger, redder, and more tortuous, until the motion ceases altogether in them, whilst neighbouring vessels are still the channel of an increased current. A chief point, then, in which inflammation differs from determination of blood, is in the retarded or arrested flow of blood in some of the vessels. This answers to the definition which we have given of inflammation: *too much blood in a part, with motion (of that blood) partly increased, partly diminished.*"—p. 252.

The cause of this retarded flow of blood through an inflamed part has always been a difficult problem for pathologists to solve. Cullen supposed it to depend on spasm of the extreme vessels. Wilson Philip ascribed it to a weakness of the capillaries, which he believed incapacitated those vessels from transmitting the blood. John Hunter taught that there was something active and vital in the enlargement of inflamed vessels, and he used the term "active dilatation;" and Kaltenbrunner, and other German writers, adopted the same idea, when they spoke of "vital turgescence," "turgor vitalis." "inflammatory erection," and analogous terms. The microscope shows the extreme vessels to be in a state of dilatation, not of spasm, and thus Cullen's hypothesis falls. To Philip s theory, Marshall Hall and others have objected by saying, that the capillaries, by their contraction, do not aid in the circulation of the blood, and that their "debility," therefore, cannot be a sufficient cause for interrupted passage of blood through them. The words of Hunter convey no meaning. The idea of Haller and some of his followers, ascribing the circulation of the blood in part to certain supposed properties of vital attraction and repulsion, by which the blood is drawn into. or repelled from particular parts, independently of all motion of the living solids—has been recently disinterred and advocated by Prof. Alison of Edinburgh. He regards changes in these assumed vital attractions and repulsions to be the chief elements in the process of inflammation. This hypothesis assumes the existence in the fluids and solids of the living body of properties as distinctly vital as that of contractility or sensibility; and, moreover, ascribes to these fluids and solids, powers of attraction and repulsion at *sensible* distances, like the attractions of electricity, magnetism, or gravitation, yet distinct from all these, and sometimes opposed to them. It attributes, in the language of our author, to the living body a new physical power, and almost a discerning intelligence in the exercise of that power. Undoubted facts are necessary before this hypothesis can be received; and Dr. Williams well observes:—

"Now, before the existence of such a power can be admitted, it must be proved that the phenomena of living structures are not and cannot be explained through any known vital or physical agencies. We have already adduced and referred to arguments and observations to show that the *known* physical and vital properties of the living body will account for the chief phenomena of health and disease without assuming the existence of any forces of a mysterious character; and we have now to consider whether the same thing may be done with regard to inflammation. If we succeed in explaining the nature and effects of inflammation by a reference to ascertained properties, it will be needless and unphilosophical to assume the existence of others, which are mysterious and unknown. We do not pretend to propose these explanations as complete or certain, but as the best that we can devise in the present state of science, and the most consistent with well-established facts; and it is very satisfactory to observe that the discoveries in chemical physiology made since the first edition of this work was written, so far from invalidating these views on the nature of inflammation and its results, go far to confirm and extend them."—p. 255.

What, then, is the cause of the stagnation or tardy motion of the blood in the most enlarged capillaries, in the midst of surrounding increased flow, and which is the great characteristic of inflammation? Is it in the vessels, or in the blood, or in both? The latter, our author thinks, we shall find to be the true case.

"In determination of blood, the arteries are enlarged, and so are the capillaries in due proportion; the circulation is therefore equally increased. In congestion, the capillaries are enlarged, without any increase of the arteries: the motion is therefore impaired; but still, being gentle, it may diffuse itself through the mass, which moves slowly. But if to congested capillaries there be added the increased and abrupt force of the current from enlarged arteries, or if to determination of blood enlarged arteries and atonic congestion of the capillaries be joined, the propulsive power of the current will be impaired. As in the experiment with the intestine, the blood will pulsate or oscillate in the distended vessels rather than pass through them; and the main current will pass through collateral anastomosing channels, which become the seat of simple determination or increased flow. This is just the state of things in the incipient stage of inflammation; and if either the capillaries do not speedily recover their tone, or the arteries do not contract, the blood in parts becomes stagnant, its particles adhere to each other, and to the walls of the vessel, and the obstruction is confirmed. The arterial portions of some of the obstructed capillaries are still open, and exposed to pulsative force from the supplying arteries, which continues to strain their coats, and cause an oscillatory motion of their blood particles, but no passage though them. Such are the phenomena which we see under the microscope."—pp. 256–257.

Hence, then, one cause of the retarded flow of blood in an inflamed part, is a weak, inelastic state of the capillary vessels; such, in fact, as exists in cases of atonic congestion. But it is very certain that the obstruction, as well as other features of inflammation, depend on "changes which take place in the blood within the inflamed vessels." John Hunter was aware of this, for besides describing the coagulation of the blood in the inflamed vessels, he mentions the adhesion of fibrin to their walls. Gendrin and others have noticed the coagulation of the blood in the inflamed vessels; and Dr. Marshall Hall attributed the obstruction of the vessels in inflammation to the adhesion of the blood globules to the walls of the vessels. Dr. Williams thought that microscopical observations should be directed to this point more specially than had hitherto been done; and, accordingly, in 1841, he made many careful examinations of the early stage of inflammation in the frog's web. We cannot afford the space to insert our author's recapitulation of them. They formed the subject of his Gulstonian lectures for 1841, and were published in the Medical Gazette of the same year. The result of numerous carefully repeated microscopic investigations was, that the chief cause of obstruction, as to the fluid within the vessels, was due to two circumstances,—the *increased production of the white globules, and their remarkable disposition to adhere to the walls of the vessels and to one another.* These investigations have been since repeated and confirmed by numerous experienced observers.

The sudden and rapid formation of the colourless corpuscles, Dr. Williams thinks may be explained in this way:

"The blood liquid is highly charged with protein, which needs only a further process of oxidation to assume the solid form of the deutoxide: this process is supplied by the free current of arterial blood (determination) which rushes into the obstructed portions, and brings the red particles, the oxygen carriers, in such forcible contact with blood liquor as favours the transfer of oxygen to the protein contained in it. As the protein becomes oxidized, it consolidates in a granular form, and the more readily around the oily molecules always diffused through the blood liquid; and these form the nucleoli visible in the larger granules. But the granules also cohere in clusters, and form the pale corpuscles of various sizes which appear adhering to and creeping along the sides of irritated vessels."—pp. 261–2.

The peculiar disposition of the white corpuscles to adhere to the walls of the vessels may be ascribed to the physical property of adhesiveness, common to soft bodies of glutinous materials. In the beginning of the obstruction of the inflamed vessels, the red corpuscles are little concerned; they show no disposition to adhere or form rouleaux; but in the period of total obstruction these flexible and elastic bodies can no longer pass, but become jammed in such numbers in the interstices of the white corpuscles, that the whole vessel speedily presents an almost homogeneous deep red color, from the great accumulation of red particles.

"It seems, then, to be well established, that an essential part of inflammation is the production of numerous white globules in the inflamed vessels; and that the obstruction of these vessels is mainly due to the adhesive properties of these globules. The production of these globules must then be considered as a constant fact in the history of inflammation and nutrition."—p. 265.

The further changes effected by inflammation are the modification in the functions of the involved vessels. This is manifested in different ways in different parts of the inflamed site. Where the flow of blood is increased, the functions will be exalted; whilst if it be obstructed, they will be more or less impaired. The effusions from inflamed vessels, although at first the same as from tense congestion and determination, present, as the inflammation advances, appearances not found in the products of mere congestion or determination. Much precise information on the nature of inflammatory effusions has recently been supplied by the microscope.

"In the frog's web, after inflammation has continued some hours, there appear outside of the vessels (especially of those in which the strongest current encounters the most complete obstruction) white globules or corpuscles, with specks in them, exactly like the pale granular globules within the vessels. These are also found in various inflammatory effusions, and are called *exudation corpuscles, granule cells*, or *fibrinous globules*."—p. 268.

In addition to these bodies, the fibrin effused by an inflamed membrane also contains a mesh of extremely fine fibres, first noticed by Messrs. Gulliver and Addison, as well as some portions of solid effusion with no distinct structure, and which are either irregularly granular, like coagulated albumen, or completely amorphous and homogeneous; with the usual solids generated by the part, as mucous globules, epithelium scales, epidermis and blood corpuscles.

The results of inflammation are thus given:

"Inflammation is always attended with more or less effusion. Where the inflammation is slight, this effusion may remove it by unloading the engorged blood-vessels; but where the inflammation is more intense, that is, where the obstruction is considerable and the determination of blood strong, the effusion may go on to a great extent without resolving the inflammation. It is then that the more serious effects of inflammation result. The effused matters press on and pervade the adjoining textures, derange their nutrition, and impair their cohesion; and thus takes place the *softening* of textures, which occurs chiefly in those of a complex kind, which retain the effused matter. The continued obstruction in the inflamed part leaves the veins and lymphatics free to absorb, and the high pressure and determination of blood tend rather to promote this process of absorption. Hence, as new matters are effused, the old texture is compressed, disintegrated and absorbed; the finer exudation corpuscles and fibres themselves are removed or altered, and the large pus globules alone remain: this is *suppuration*. Or if the original obstruction of the inflamed vessels be extensive, or have been rendered so by the subsequent effusion, the supply of blood may be so stopped in a part, that it dies, and the dead part may then either be only dissolved and absorbed at its circumference, and separated from the living textures in form of a *slough*: or if more extensive, the dead part may pass into decomposition before it can be separated; thus occur *gangrene* and *sphacelus*. If the inflammation be of a lower kind, the obstruction less complete, and the effusion more gradual, the nutrition of the natural texture is only impaired, not arrested, and from the increased deposition of solid matter, *induration* or *consolidation* takes place."—pp. 270–1.

Such is our author's description of the process of inflammation in its intimate nature and phenomena, and we fear that our analysis has conveyed but a feeble idea of the admirable manner in which he has discharged a delicate and difficult task. We pass over the description of the symptoms, both local and general, of inflammation, together with the nature and symptoms of the terminations or results of inflammation, which is simple and highly graphic, recent microscopical and chemical observations being laid under heavy contribution. We would direct particularly the notice of the reader to it; he will obtain much valuable information on these important subjects in a compact and available form.

In the treatment of inflammation and its results, though there is nothing of novelty advanced, the views which should guide us are laid down most judiciously, and with a clearness which makes them comprehensible to the youngest student.

Chapter fourth is on structural diseases or diseases of nutrition. The author's classification of the elements of diseased structure is given in the following table.

- DISEASED NUTRITION
  - Increased=hypertrophy.
  - Diminished=atrophy.
  - Perverted . .
    - Induration.
    - Softening.
    - Transformation and degeneration.
    - Deposits
      - Euplastic
        - Cicatrices.
        - False membranes.
      - Cacoplastic
        - Cirrhosis.
        - Fibro-cartilage.
        - Gray tubercle.
        - Atheroma, &c.
      - Aplastic
        - Yellow tubercle.
        - Calcareous matter, &c.
    - Growths
      - Non-malignant
        - Cysts.
        - Tumours.
        - Hydatids, &c.
      - Malignant
        - Carcinoma.
        - Encephaloma.
        - Melanosis, &c.
- ALTERED MECHANISM
  - Contraction
  - Dilatation
  - Obstruction
  - Compression
  - Displacement
  - Rupture, &c.

We shall be able only to briefly notice some interesting points. In a note at p. 362, speaking of the typhous-material in the intestinal follicles, bronchial glands, lungs, &c., mentioned by Rokitansky, Vogel, Engel, and other German pathologists, Dr. Williams, says: "Under the microscope, however, this matter exhibits nothing to distinguish it from bad fibrin or cacoplastic lymph; and in accordance with the view in the text, I consider it to be such, and tending to involve in a process of sloughing the excretory follicles of the intestines by which it is attempted to be thrown off, or inducing a deposit in the lung which has various pernicious tendencies."—p. 362.

The recent and extensive researches of Dr. H. Bennett, published in the *Edinburgh Monthly Journal*,* the results of sixty-three post mortem examinations, would seem to be confirmatory of the opinions of the German pathologists. In addition to the organs already named, Dr. Bennett found infiltrated masses of the typhous deposit in the spleen.

Under the head of cacoplastic and aplastic deposits, there is an exceedingly excellent article on the pathology of tubercle. Dr. Williams refers tubercle "to a degraded condition of the nutritive material from which old textures are renewed and new ones formed; and holds that it differs from fibrin or coagulable lymph, not in *kind*, but in *degree*, of vitality and capacity of organization."—p. 386. These views, which our author has held and taught for many years, have within a short period received demonstrative confirmation by the microscopic observations of numerous observers, and amongst others Mr. Gulliver, who detected in tubercle the materials of lymph, but in a degenerated and confused state, the cells being few, irregular, shrivelled, with imperfect nuclei and incapable of futher development; no fibres being perceptible, and the main substance being composed of panular or amorphous matter.

"The circumstances which degrade the material of nutrition," observes Dr. Williams, "and lead to the deposition of cacoplastic and aplastic matter, may be either local or general. Of the local causes, congestion and the lowest and more chronic forms of inflammation have been mentioned as capable of determining cacoplastic deposits; but even in these cases it is probable that the general cause also more or less operates—that is, a degraded state of the plasma of the blood. Congestions and chronic inflammations certainly cause cacoplastic effusions; but then, such congestions and chronic inflammations do not easily occur in healthy subjects; and the want of health may imply that the plasma of the blood is bad in addition to the local cause. But practically, it is of great importance to keep in view the local as well as the general cause, for the former is often more tractable than the other, and it is by guarding against it that slighter degrees of the general cause (diseased plasma) may be prevented from doing mischief. But the general cause, when present in great degree, leads to cacoplastic and aplastic deposits, as modifications of ordinary textural nutrition, independently of inflammation or even congestion. This general cause thus prevailing constitutes the chief element of the scrofulous diathesis or tuberculous cachexia, and we have before mentioned that a defect of the red particles and an excess of fibrin in the blood constitute its most remarkable feature. In this condition of the blood there is an increased disposition to deposit, and often an abundance of the fibrinous or nutritive material, but an imperfect vitality or organizability of this material, so that when deposited instead of being assimilated to the textures, it forms the degenerated structures or mere granular or amorphus deposits, which we have been describing. But with this condition of the blood, these deposits must be greatly promoted by all varieties of hyperæmia, and prevail most in organs which receive the largest amount of blood. Hence, the peculiarly pernicious effect of inflammation of internal organs, especially the lungs, in scrofulous subjects. Even acute inflammation may be unequal to raise the nutritive material to a plastic standard at which it may be organized or absorbed, or to mature it to the process of complete suppuration by which it may be speedily excreted; but the matter thrown out is cacoplastic or curdy lymph, remarkable for its opacity and want of cohesion, or a caseous kind of pus, inorganizable, inert, irremovable by absorption, and permanently obstructing or compressing the structures in which it accumulates, until it gradually excites an irregular destructive suppuration or ulceration, forming vomicæ, or imperfect abscesses pervading the structures, and without walls capable of healing, whilst under the depressing and irritating influence of the morbid matter decaying and becoming decomposed, the body wastes with hectic fever, night sweats, and colliquative diarrhœa. So likewise fevers, by causing congestions in organs, lead to the production of a *crop* of these deposits, from which tuberculous disease takes its origin."—pp. 396–7.

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* See American Journal for Jan. 1848, p. 241.

The several circumstances which contribute to render the lungs especially liable to tuberculous deposit, are, in the author's opinion, "1. Their great vascularity and the large quantity of blood that passes through them, which makes them largely partake of any disorder in the condition of this fluid. 2. There being a chief seat of the formation of fibrin, that principle being more abundant in arterial than in venous blood. 3. The softness and yielding nature of their texture, which permits effusion to take place more readily than denser textures do. 4. Their exposure to external causes of diseases, whether by cold and irritations directly entering by the air-tubes, or by circumstances operating through the medium of the circulation. In hot climates, cacoplastic diseases affect the liver and other abdominal viscera more than the lungs; the same persons there suffering from chronic liver disease and dysentery, who, in a cold climate would fall victims to phthisis."—p. 398.

In the treatment of tubercle, Dr. Williams states that his experience leads him to speak highly of the cod-liver oil; he says that it is "assuredly the most efficacious of all medicinal agents in the treatment of cacoplastic and aplastic deposits, and one which, after two years' constant experience in its use, is still frequently surprising me by the wonders that it occasionally works even in aggravated and advanced cases of scrofula, mesenteric disease, pulmonary consumption, chronic pneumonia and pleurisy, and chronic rheumatism."—pp. 404–5.

The best effects have generally resulted from the use of the purest kind. It is important that it should be as free from taste and smell as possible, and should be deprived of most of the stearine, by cooling and settling, or by filtration. That cod-liver oil owes its efficacy to the iodine it contains, Dr. W., in common with most practitioners who have employed it to any extent, does not believe. His theory of its mode of action will be found in the following extract.

"Such an oil (purified) given in doses gradually increased to a table-spoonful three times a-day, in the great majority of cases, agrees well with the stomach and bowels, increases rather than impairs the appetite, and, if continued for some weeks or even months, promotes in a marked degree the function of nutrition, increasing the strength as well as the flesh, and giving increment to all the textures. Nor is this surprising when we consider that the nuclei or rudimental molecules of all structures appear to consist of fat, which the oil in its highly divisible state, supplies and renews in the manner most conducive to active and healthy nutrition. Its peculiar fluidity and little proneness to change also enable it to pervade all structures, and to penetrate even into imperfectly organized deposits, and by softening their concrete fatty molecules, and rendering more permeable and supple their whole mass, brings them more under the influence of the adjoining living parts, through the circulation in which either their vitality and nutrition are improved and maintained, or if incapable of improvement, they are gradually dissolved and absorbed away."—p. 404.

The sections on non-malignant and malignant morbid growths, contain a well-digested summary of the best views on these subjects, and may be consulted with profit.

Chapter fifth treats of the classification, symptoms, and distinction of diseases. Semeiology and diagnosis are hardly touched upon. We had hoped that the author's leisure would have enabled him to place these subjects on a level with the rest of the work; but this, it seems, either did not enter into his plan, or else he has, for some reason, been unable to accomplish it. These sections are very unsatisfactory. The section on prognosis has not fared better, but is somewhat redeemed by the excellent account of the various modes of death. The chief varieties are thus tabulated:

Death (cessation of function) beginning at the heart { Sudden=syncope.
{ Gradual=asthenia.
— — beginning at the breathing apparatus=Asphyxia or apnœa.
— — beginning at the brain=Coma.
— — beginning at the medulla=Paralysis.
— — beginning in the blood=Necræmia (νεκρος, dead; αιμα, blood).

The concluding and seventh chapter, on prophylaxis and hygienics, of forty-four pages, has been nearly entirely added. Though it might, perhaps, have been advantageously extended, it is very valuable, and written with that sound discrimination and good sense which distinguish all the practical portions of the work. It is, indeed, the best hygienic code that we ever remember to have met with.

We now take a regretful leave of Dr. Williams. Of the character and value of the 'Principles,' the reader will be enabled to form an opinion from the analysis we have presented, and the extracts we have made; he will, we believe, think it entitled to claim his best attention, and that its perusal and study will be amply remunerative. It is a work calculated to elevate the character of medical science, from its correct and lucid exposition of the great principles of scientific investigation; and its plain, practical character, will recommend it to the student and practitioner of medicine and surgery. The author observes, "that whilst he feels grateful for the approbation with which this work has been honoured by scientific men, both in this [Great Britain] and foreign countries, he is especially gratified by the favour with which it has been received by practitioners of great experience." We think that the author has ample reason to express the hope that his "attempts to combine science with art, and to place the practice of physic on a more rational basis," have not been altogether unsuccessful.

M. C.

Art. XIII.—*Lectures on Yellow Fever; its Causes, Pathology, and Treatment.* By John Hastings, M. D., United States Navy. 8vo. pp. 69. Philadelphia: Lindsay & Blakiston, 1848.

A close analysis of the various histories of yellow fever, as it has occurred in different localities and at different periods, that have been recorded by various observers, would show, we believe, very conclusively, that under this title are included several forms of disease, which, though they may resemble each other in some of their leading features, are, nevertheless, distinct in their true pathological characters. It is difficult in any other way to account for the discordance, in regard to almost everything relating to the disease, which marks the descriptions of it furnished to us by different writers, of whose fidelity and accuracy of observation we have no reason to doubt. Discrepancies of opinion in regard to the etiology of yellow fever, and discordant views in regard to its true pathological character we can easily understand, but we cannot account for the history of the ordinary symptoms and progress of the disease, and of the lesions discoverable in the bodies of those in whom it has proved fatal, furnished to us by one authority, differing materially from the history furnished by another authority of equal respectability, excepting upon the supposition that the two histories have been drawn from cases not of the same, but of different affections, resembling, but not identical with each other.

In the work before us, Dr. Hastings furnishes us with the result of his observations upon the causes, pathology, and treatment of yellow fever, which certainly differ in many important particulars from the observations recorded by others. As this gentleman's opportunities for studying the disease have, however, been unquestionably very extensive, his conclusions in relation to the disease are deserving of an attentive consideration.

In relation to the all-important and much contested question of the cause by which the disease is produced, Dr. Hastings is very positive that the yellow fever is generated invariably by the malaria or exhalations from an alluvial marshy soil, subject to periodic inundation and draining; the poison being eliminated during the process of desiccation under a high degree of solar heat. He states it as a positive certainty, that where yellow fever prevails, there is also found every variety of intermittent, and very generally, all varieties of remittent and bilious fever; these diseases, arising, in his opinion, from the same poison, but in different degrees of intensity.

This error has been so frequently and conclusively refuted, that we must express our surprise that Dr. H. should again bring it forward and announce it in so positive a manner. Though the facts he adduces in reference to the circumstances under which the disease occurred in the lower portion of Florida, and on the coast of Mexico, would appear to establish the correctness of the views advanced by him; yet allowing to these facts all the weight that can be justly claimed for them, they are met by a host of others, which are entirely opposed to the conclusion which the author has drawn from them.

Dr. Hastings has never seen a single instance where there was the least cause to suppose that the fever originated on board of ship, notwithstanding he has frequently seen ships in the conditions said to give rise to it; and never saw it on board of any of them, unless it was prevailing on shore, and then, even, he has seen vessels escape for a long time, when, according to the views entertained by others, they should have originated the disease.

The facts adduced by the author in support of this statement are, we confess, particularly strong, but they do not strike us as conclusively supporting his general position in regard to what he supposes to be the only source of yellow fever.

Dr. Hastings believes, that in every instance in which the disease occurs on board of ships, whether at sea or upon the coast, it is produced by malaria carried to them from the land through the medium of the air. The evidence which the author cites in proof of this position, is, in our opinion, not very strong. If the malaria giving rise to yellow fever can be conveyed to great distances through the air undispersed, and undiluted by the latter, how happens it that when the yellow fever makes its appearance in a city, it is very generally confined to particular districts, beyond which it is seldom found to extend?

Our author denies the contagious character of yellow fever. He does not believe it possible to create the disease in a person confined among, and waiting upon any number of those affected with it, provided these are removed from the district where the disease was contracted, to a position known to be free from its invasion, and attended by persons who had not been exposed to the disorder, otherwise than by contact with the sick. He has seen at Indian Key, Florida, where the naval hospital was situated, in the epidemic of 1841 and '42, patients admitted in every stage of the disease, and even the bodies brought there of those who had died of it at other places, and yet without a single case occurring upon the island.

The history of the symptoms and ordinary progress of yellow fever as laid down by Dr. Hastings differs in some particulars, from that given by others. It certainly does not agree, in a few important points, with the general features and march of the disease, as it has fallen under our notice in Philadelphia. The remarkable subsidence of all the more violent symptoms, which usually takes place about the third, fourth, or fifth day of the disease, and leads the inexperienced observer and the deceived patient to conceive hopes of recovery, when, in very many instances, the remission is to be followed, after a few hours, by the black vomit and a state of collapse, is a circumstance, remarks Currie, in his work on the Endemic Diseases of the United States, without a parallel in the history of fevers, and may therefore be considered as pathognomonic of yellow fever. This peculiar feature of the disease, which is noticed by almost every American authority, is wanting in the general description given of it by the author; though in his remarks on the prognosis, he notices, incidentally, as a remarkable feature of the disease, a complete remission of the more prominent symptoms, which frequently occurs about the fifth day.

In regard to the pathological anatomy of the disease, the following account is given by Dr. Hastings:

"The brain and its membranes show in all cases results of active and extensive disease. The substance of the brain is rather firmer than natural, and completely engorged with blood, both upon its surface and interior structure: the ventricles are generally filled with a yellowish or bloody serum, although in some cases they are preternaturally dry; yet the amount of bloody serum contained within the cranium generally is very large. The substance of the brain is so fully charged with blood, that when the medullary matter is cut across, numerous points bleed freely; and its whole structure is so coloured by the amount of blood contained in it, that there is but little difference existing between the medullary and cineritious matter. The membranes of the brain are all thickened; the dura mater particularly so in the region of the superior longitudinal sinus; and the glands of Pacchioni are very much enlarged. The arachnoid membrane is greatly thickened, of a pearly hue, and tears with difficulty, compared with its delicate normal condition. The pia mater is thick and whitish, like the arachnoid, to which it is firmly adherent; there is often a quantity of partially organized lymph thrown out upon the surfaces of these two membranes, sometimes an eighth of an inch in thickness; and I have even seen it nearly a quarter of an inch thick, having found these two coverings so thickened and strengthened by the process of inflammation, that I have held the whole mass of the brain, engorged as it is, and with the dura mater attached, by these two delicate membranes, that in their natural condition break at the slightest touch.

"The alterations of the spinal marrow and its membranes are the same as those found in the interior of the cranium. The vessels of the membranes of the brain and spinal marrow are greatly distended with blood.

"The heart and lungs are not at all affected in yellow fever."—

"The stomach is filled with, or contains a large quantity of black vomit; its mucous membrane is thickened to twice its healthy condition; it is dark-coloured, softened, and in a state of sphacelus, and frequently removed in large patches, particularly about the cardiac orifice. Throughout the rest of its surface, it is so soft that it is easily removed by the handle of a scalpel, or the finger nail, and it is also about this orifice and smaller curvature, greatly injected with blood.

Throughout its surface, are small bright scarlet spots, looking so much like fresh drops of blood, that I have seen the finger of those unaccustomed to these examinations, passed over them, thinking to brush these stains away. But they are fixed in the mucous membrane. This condition extends to the pyloric orifice; from this out, the intestines, both large and small, are unaltered and natural, with the exception of a slight degree of congestion or injection of the mucous membrane of the duodenum."

"The liver undergoes a very great change. It is rather contracted and of a yellow colour, resembling very much the colour of old box-wood; this is particularly observable on the anterior part of the right lobe, although it pervades more or less its whole structure. Its substance is very much firmer than natural, indeed, it is almost of a cartilaginous consistence; so much so, that it is nearly impossible to penetrate a piece of it with all the force you can exert, when holding it between the fingers and thumb. It cuts with a hard, shining surface, and tears rather smoothly; its normal or granular appearance being almost or entirely lost."

"The gall-bladder is natural and contains a moderate quantity of dark bile. The spleen is unaltered, except in cases where the deceased had suffered from frequent attacks of intermittent fever; in these cases it was enlarged and softened."

"These comprise all the changes effected by a fatal attack of yellow fever terminating upon the seventh day.

"In the second case, wherein the disease comes to a fatal issue upon the fourteenth day or at a later period, very different pathological appearances present themselves. In these cases, the brain and spinal marrow are softened; their membranes are thickened, and there is generally a very large amount of yellowish or bloody serum within the cranium and spinal canal. The heart and lungs are healthy. The stomach is in much the same condition as already described: but the mucous membrane of the duodenum, small and large intestines, is greatly injected, thickened and softened, of very dark colour, and in some cases removed or destroyed in patches. The glands of Peyer and Brunner are injected and enlarged. The whole track of the mucous membrane resembling the change of structure met with in patients dying of typhus fever, but not to the same extent. The stomach is sometimes filled with black vomit, and the intestines contain dark matter resembling it. The mucous membrane of the bladder is injected with blood, and spotted with many scarlet points. The spleen, if altered at all, is rather softer than natural." "The liver is engorged with dark blood; about natural size, of dark colour and softened. The kidneys and other viscera are found to be in normal condition. The blood remains in its liquid state in those who die; but there does not appear to be any peculiarity in that taken from yellow fever patients. It is observed to be cupped, has the buffy coat and same appearances as all blood taken from those suffering by active inflammation and a high state of fever. It contains, doubtless, a large amount of bile or its constituents, owing to the crippled or suspended functions of the liver."

Dr. Hastings has made a strange misstatement in commenting upon M. Louis's account of the pathological changes observed in the fatal cases of yellow fever observed by him at Gibraltar in 1848. So far from the latter having never inquired into the condition of the brain and spinal marrow, as our author asserts, but passing them by without a word and even without observation, M. Louis informs us, that he examined the brain and spinal marrow with great minuteness; the changes he discovered he did not consider, however, peculiar to yellow fever, the same being met with in typhus fever and other diseases.

In the treatment of the disease, Dr. Hastings's chief dependence is in bleeding in the early period of the stage of excitement. Bleed, he remarks, *ad deliquium animi*—the amount of blood should not be regarded in the least—let it flow until the fever breaks, and the skin upon the forehead becomes moist. Calomel in large doses, followed by the sulphate of magnesia; blisters to the epigastrium and hypochondrium;—the blistered surface being dressed with mercurial ointment, in order to bring the system under the influence of mercury, and to keep up a mild degree of ptyalism for about seventy-two hours from the commencement of the attack; during which time not a mouthful of anything should be taken into the stomach unless the vomiting continue. The bowels to be kept open by enemata of

Castor oil, turpentine, and some mucilage; the thirst to be allayed by ice or iced water held in the mouth, but not swallowed.

For irritability of stomach, he directs from a quarter to half a drop of creasote, dissolved in ether or acetic acid, every hour,—combining it, when there is great excitement of the nervous system, with small doses of morphia. Iced water is to be kept constantly applied to the head, and the skin sponged with cold water when it becomes hot and dry. Sinapisms are directed to the spine to relieve the pain in the small of the back.

When, as it sometimes happens, after the lapse of twenty-four or forty-eight hours, or more, the skin becomes hot and dry, with violent pain in the small of the back and throbbing pain in the head, with disposition to coma, the author directs a repetition of the bleeding; and is satisfied in his own mind that he has saved life by so doing; although, he remarks, the necessity for a second bleeding does not arise in more than one case in two hundred, or at least in one hundred.

"When the above system of treatment is carried out, rigorously, the patient generally, on the fourth day, but at most universally on the fifth, is free from all fever, and has not a bad symptom left, and desires something to eat, and if he be moderately indulged with a little gruel of tapioca or some such innocent diet, sweetened, spiced, and seasoned with wine, he will improve very rapidly; at the same time, that is, from the fourth or fifth day, he should be allowed to drink weak brandy and water—this is one of the best stimulants that can be employed —but he should be stimulated gradually; and, from this time, no other medicine will be required than small doses of extract of colocynth or taraxacum and blue mass. Where the nervous system is much disturbed, small doses of strychnia can be added with advantage, followed occasionally by a Seidlitz powder, merely sufficient to correct the tendency to constipation, which exists for some time during recovery."

Dr. Hastings considers that no disease is more entirely under the control of medical treatment than yellow fever, nor is there any one more imperatively demanding it.

We have considered the above notice of the work before us due to its author. His opportunities for studying an important disease have certainly been sufficiently extensive, and his object in publishing the result of his observations, which are in the main interesting, has been evidently to instruct his fellow-practitioners. While, however, Dr. H. feels a firm conviction of the truth and correctness of the views he has advanced, we fear that his estimate of the facts that have fallen under his notice has been, occasionally, somewhat superficial and one-sided, and that his deductions cannot be received as invariably accurate; while, in more than one instance, the style in which his observations are communicated is liable to well-founded objections. D. F. C.

ART. XIV.—1. *Thirtieth Annual Report of the Physician and Superintendent of the McLean Asylum for the Insane.* Boston: 1848.

2. *Twenty-fourth Annual Report of the Physician and Superintendent of the Retreat for the Insane.* Hartford: 1848.

3. *Thirty-first Annual Report of the State of the Asylum for the relief of Persons deprived of the use of their Reason.* Philadelphia: 1848.

4. *Twentieth Annual Report of the Physician and Superintendent of the Western Asylum.* Richmond, Va.: 1848.

5. *Annual Report of the Superintendent of the Kentucky Lunatic Asylum.* 1848.

6. *Reports of the Physician, and the Superintendent and Resident Physician of the Lunatic Asylum.* Columbia, South Carolina: 1847.

1. DR. BELL's report is unusually brief, being restricted to "a general view of the institution and its results for the year." He has confined himself to these narrow limits, for the purpose of giving room to the accompanying communication from a committee of the Trustees of the Massachusetts General Hospital, on the history and results of the administration of sulphuric ether as an anæsthetic agent.

The following are the statistics of the McLean Asylum for the year:

	Males.	Females.	Total.
Patients at the beginning of the year - -	88	85	173
" admitted during the year - - -	94	76	170
Whole number under care during the year - -	182	151	343
Discharged during the year - - - -	89	81	170
Remaining at the end of the year - - -	93	80	173
Of the patients discharged, there were cured -	42	45	87
" " " " much improved	4	5	9
" " " " improved -	9	7	16
" " " " unimproved	15	6	21
" " " died - -	12	9	21

"The bill of mortality," says the report, "is unusually large. This is ascribable, in part, to the fact, that in the preceding year the number of deaths was only nine—less than half the ordinary average; throwing upon the then ensuing period quite a number of aged, feeble, and epileptic. The existence of a severe, intractable, epidemic dysentery, prevalent also through the county, occasioned us the loss of twelve patients, out of eighty in our household who were seized with the disease."

The large ratio of cures is attributed to a provision by which the Asylum is enabled to retain almost every case until a fair trial of restorative means was made. Could other institutions enjoy a similar advantage, the number of cures at many of them would be materially augmented.

Dr. Bell makes the following remarks upon the subject of new remedies. "It has been our aim to adopt any outlay for every real improvement which the experience of the world has offered in treating those disorders, one of the symptoms of which is alienation of mind. Aware, from frequent disappointment, that many of the novelties, moral and medical, which furnish a hope to the sanguine, and a newspaper paragraph to the curious, have but an ephemeral existence, we have each year found ourselves less hopeful as to new means of treating the insane, and have been gradually attaining the belief, that that institution which most closely pursued and thoroughly carried out the views presented a half century since by Pinel and Tuke would best fulfil its great end. The investigation of Moreau and others, into the properties and effects of the drug termed hachisch, in producing a continuous state of happy reverie, calculated to replace simple melancholy or functional nervous depression; and the recent discovery of the effects of those wonderful agents, the inhalation of the vapour of ether and chloroform, rekindle the hope that some forms of insanity may yet prove to be more immediately under the controul of direct medical means, than they have been found under the present advance of science."

2. From the report of Dr. Butler, of the Hartford Retreat, we glean the following items:

	Males.	Females.	Total.
Patients at the beginning of the year - -	56	62	118
" admitted during the year - - -	39	54	93
Whole number under care during the year - - -	95	116	211
Discharged during the year - - - -	36	53	89
Remaining at the end of the year - - -	59	63	122
Of the patients discharged, there were cured -	12	28	40
" " " " much improved	5	5	10
" " " " improved -	8	6	14
" " " " unimproved	7	6	13
" " " died - -	4	8	12

Causes of Death.—Epilepsy 1; exhaustion 3; apoplexy 1; consumption 1; old age 1; marasmus 1; paralysis 1; disease of brain 1; uterine disease 1; suicide 1.

Since the opening of the Retreat, 1764 patients have been admitted, and 1642 discharged. Of the latter, there were recovered 942, improved 557, died 143.

The following remarks on some of the causes of insanity are worthy of notice: "Of the one hundred and eighty-seven female patients admitted during the past three years, 34 per cent. were the wives of farmers or mechanics. It must be that this is an undue proportion of the comparative number of that class in the community. Many of these are young women, who leave nursing, or quite young children at home. The frequency of this occurrence, and its obvious causes, require more than a passing remark A few brief suggestions may lead. hereafter, to a better understanding of these causes, and consequently to their avoidance. Many of this class present themselves at the institution; either in the high excitement of acute mania, or in the deep and oftentimes suicidal depression of melancholia; in all cases greatly exhausted, and most evidently worn down by hard work and anxiety, undue mental and physical effort, as classed in the table; though sometimes, other and more obvious causes (though less real), are received and recorded by us. In many cases, not having received in early life a judicious physical or moral training for her new and arduous station, the young wife, impelled by affection and an honest pride to her utmost efforts, soon finds that, with her increasing family, the burden of care and duties increases; while her physical strength and capacity of endurance diminish even in a greater ratio.

"An economy sometimes deemed necessary, now often ill-judged and cruel, leads the husband to refrain from supplying the necessary domestic assistance; the nurse is discharged too soon, and, sometimes, no suitable one is provided. In addition to their own proper household, an eagerness for gain leads him to take boarders from the operatives in the neighbouring factories, for whom the wife must cook and otherwise provide, and often the day proves too short for the accomplishment of the necessary duties, and her labours are protracted to a late hour of the night, and the broken slumbers of the remainder of its hours of rest give little refreshment.

"Thus, it must naturally follow, that, between childbearing, nursing, and the accumulation of household duties and drudgery, the poor, heart-broken, and disappointed wife loses in turn her appetite, her rest, and her strength; her nervous system is prostrated, and, sinking under her burden, she seeks refuge in a Lunatic Hospital. This process of inducing insanity, is by no means limited to the above mentioned classes; the same thing, differing more in degree than in manner, is too often seen elsewhere."

3. In the Asylum at Frankford, the number of patients at the beginning of the year, was

	Males.	Females.	Total.
	26	32	58
Admitted during the year - - - -	16	21	37
Whole number during the year - - -	42	53	95
Discharged during the year - - -			40
Remaining at the end of the year - - -			55

Of the patients discharged, there were cured -	24
" " " " much improved	2
" " " " improved -	3
" " " " unimproved	8
" " " died - -	3

Causes of Death.—Inflammation of bowels, 1; apoplexy supervening upon the paralysis of the insane, 1; mortification following erysipelas, 1.

The method of endeavouring to manage the insane by equivocation, deception and falsehood is so general in the community, that the following judicious remarks cannot be too widely circulated.

"We think it necessary to call the attention of those who may have the care of the insane, to the great importance of observing towards them such a course of conduct, as will tend to inspire them with confidence—of treating them with kindness and candour, and especially of avoiding every attempt to impose upon them, by promises which are not meant to be fulfilled.

"There seems to be a fear prevalent with many, of speaking frankly to the insane on the subject of their disease, and great care is taken to avoid any reference to the subject. This, in many cases, induces a resort to equivocation, or to holding out to patients other motives or objects than the real ones, for the course which is deemed necessary to be pursued towards them. It is too often thought to be not only justifiable, but advantageous to influence the insane in this way, though they nearly always have acuteness enough to discover the deception, and are far more apt to have their suspicions excited, and their fears increased, than to be benefited in any way by such treatment. When it becomes necessary to resort to restraint on their movements, or to a course of medical treatment to which they object, it is much better to inform them of their real condition, and of the necessity of submitting for a time to the judgment of others, rather than attempt to gain upon them by misrepresentations, or promises which are never intended to be fulfilled. It may be said, that the insane generally are not averse to placing confidence in those about them, and that it is not until they find that some advantage has been taken, or some deception practised upon them, that they become suspicious, and imbibe that dislike for their nearest friends, which is thought to be so common in their disease.

"These remarks apply especially in cases where it is contemplated to remove the insane from their homes, and to place them under treatment in an asylum or hospital.

"When this is decided on, they should always be informed of the determination; and, if they are capable of understanding them, the reasons which have induced their friends to come to that conclusion should be explained. When this is done in a proper manner, it is very seldom that they will not submit quietly to the wishes of their friends: and invariably such a course occasions much less trouble and anxiety than when a different one is pursued. The patient enters the institution in a much better condition, for the beneficial action of those means which are to restore health. In several instances which have come under our notice, the disease has been aggravated, and recovery manifestly retarded by the irritation and excitement that have been produced, in consequence of the want of that respect and regard for the feelings of the insane, which would dictate the plan of dealing with them which is here recommended."

4. In consequence of an act of the Legislature of Virginia, requiring the superintendents of Public Institutions in that State to prepare their annual reports up to the 30th of Sept., instead of to the close of the Calendar Year, the present report of Dr. Stribling, of the Western Asylum, embraces a period of but nine months, from the 1st of Jan. to the 30th of Sept. 1847.

	Males.	Females.	Total.
Patients on the 1st of January - - - - -	123	94	217
Admitted during the nine months - - - -	19	20	39
Whole number under care - - - - -	142	114	256
Discharged during the nine months - - - -			49
Remaining Sept. 30th - - - - - -			207
Of those discharged, there were cured - - -			23
" " " much improved -			2
" " " improved - -			3
" " " unimproved - -			2
" " eloped - - - -			1
" " died - - - - -			18

Causes of Death.—Marasmus, 4; epilepsy, 3; pulmonary disease, 3; inflammation of brain, 1; congestion of brain, 1; dysentery, 1; typhoid fever, 1; hydrothorax, 1; chronic diarrhœa, 1; causes unascertained, 2.

"Within the last few months," says the report, "an all-wise Providence has seen fit to afflict us with a typhoid fever, which, confining itself to no grade, sex or color, prostrated upon a bed of languishing, many of our officers, attendants, patients, and servants. The whole number thus attacked was about thirty. The disease seemed not malignant, nor were its symptoms unusually violent; but it was remarkable for the tenacity with which it clung to its subjects. Few became convalescent until they had lingered four or five weeks, and some scarcely commenced improving until after the seventh or eighth week of their illness. Only two deaths occurred, one of them a female patient, the other a servant.

Notwithstanding the large additions which have been made to this institution within a few years, all its apartments are now continually occupied, and during the nine months embraced by the report, eighty-four applicants were refused for want of room. Dr. Stribling therefore recommends that further accommodations for the Insane of the Commonwealth be provided.

5. By the report of Dr. Allen, of the Kentucky Lunatic Asylum, it appears that the number of patients in that institution, at the beginning of the year, was

	Males.	Females.	Total.
	129	96	225
Admitted during the year	54	32	86
Whole number	183	128	311
Discharged during the year			64
Remaining at the end of the year			247
Of the patients discharged, there were cured			29
" " " " "removed"			10
" " " eloped			2
" " " died			23

The people of Kentucky never have been, and appear still not to be aware of the importance of treating insanity in its early stages, and Dr. Allen devotes a considerable portion of this report, as he has of those which preceded it, in pourtraying the advantages of bringing patients to the asylum soon after the commencement of their disease.* Of the eighty-six patients received during the past year, only ten were recent cases.

A large addition to the buildings of the institution is now nearly complete. In its construction much labour by the inmates of the asylum was expended, and that part of the report relating to this subject is fraught with such interest, that we extract it.

"The entire year has been one of almost unremitting toil to officers and attendants, and of much labour to patients. An amount of labour has been performed, I think I may justly say, which has nowhere else been equalled by lunatic hands.

"Those hands that have been employed about the improvements in progress, have worked steadily and willingly, and, I may add, with benefit to themselves, and advantage to the hospital.

"I cannot stop to specify what has been accomplished, but merely mention a few of the more important jobs that have been performed by them.

"The whole of the stone in the foundation of the new building has been quarried and hauled; and the brick laid in its walls, (about 1,100,000,) with the exception of moulding, were made and carried to the scaffolds, the mortar mixed and borne by lunatics. The foundation, 112 feet long, by 64 feet wide, and 10 feet deep, was dug; also, drains traversing every department of it, uniting in a common one leading thence to a cave below the spring, a distance of 800 feet, 8 feet wide by 10 feet deep, and stone gotten and placed at hand to build, throughout these drains, a sewer, with 18 inch side walls, with a covering of large flag stones, amounting to about —— cubic feet of digging, and 300 perches of stone work.

"Such are the achievements obtained by encouraging the insane to moderate labour.

"In addition to all this, the ordinary labours have been performed, such as gardening, farming, &c., from all of which, abundant crops have been obtained."

6. Two reports emanate from the medical department of the Lunatic Asylum, South Carolina—one by Dr. Trezevant the attending physician, the other by Dr. Parker, the superintendent and resident physician. The statistics for the year, according to Dr. Parker, are as follows:

Patients at the commencement of the year	70
" admitted during the year	33
Whole number under care	103
Discharged during the year	29
Remaining at the end of the year	74
Of the patients discharged there were cured	17
" " " " "removed under improvement"	5
" " " eloped	1
" " " died	6

Dr. Trezevant's report includes under the head of cures, the five patients here stated to have been "removed under improvement."

The reports include an elaborate consideration of the various means of moral treatment. Dr. T. proposes, as a new method of diversion and exercise, a machine of his own invention. As it is a novelty, we quote his remarks upon it. "I am, moreover, impressed with the belief, that if one was erected, that our now workers could be urged into action, by the spirit of fun and frolic. Many are willing to play off a practical joke, and take great pleasure in inducing them to enter into what they would call sport. The action would commence in play, but they would be compelled to go on with it, if the excitement of their feelings would not induce them to continue, and the workers would become partakers of the pleasure of the ride, and exhilarating effects of rapid movement in the open air; but, should they determine not to move, and positively refuse to work, still the very effort which they make to sustain their determination, calls the brain into action, and produces a new train of thoughts and feelings; and if they decline motion, they must hold by their hands, and use much muscular exertion, and my object will be in some measure accomplished in spite of themselves. So that whether they act in accordance to my wishes or their own will, the much desired objects will be effected. The mode proposed would be wheels connected together by an endless band, and so arranged as to act on a large horizontal wheel, on which seats could be placed similar to the flying horse. This would be exercise and amusement to all parties, and might be made to answer the purpose of a rotary chair, and by the different positions to and from the centre, excite or diminish the activity of the brain; it can be made to answer the purpose of a circular swing, and, by the centrifugal force, rouse the brain to any extent, and with the centripetal motion depress it. The force required to effect this, I will make by an endless band, on which one or more patients shall walk, and arrange it, so that no possible injury can occur; and they shall not be exercised beyond their powers, but sufficiently to make them more healthy, and cheer their minds by seeing the effect of their apparent mischief on those revolving about them. I cannot but believe, that an instrument of this kind will be beneficial to all parties, and may, with a little ingenuity, be adapted to many useful purposes."

P. E.

Art. XV.—*Practical Observations on Certain Diseases of the Chest, and on the Principles of Auscultation.* By Peyton Blakiston, M. D., F. R. S.; Fellow of the Royal College of Physicians; Physician of the Birmingham General Hospital, and formerly Fellow of Emanuel College, Cambridge. 8vo. pp. 384. Philadeldelphia: Lea and Blanchard.

The importance of auscultation as a means of diagnosis in the diseases of the chest being now almost universally recognized, no physician can be considered excusable who has not made himself acquainted with its principles and practice. With the consideration of auscultation, therefore, the present work commences; nearly one-fourth of its pages being devoted to this subject. The great object of the author has been to develope the principles of auscultation in as elementary a manner as possible; and, so far as mere description can do, he has succeeded in rendering the auscultatory sounds and indications plain and intelligible. In order to assist the novice and to prevent repetition in referring to the laws of sound, a short summary of such of its properties as are applicable to auscultation of the chest, has been prefixed to the chapters on the latter subject. The student will find the portion of the present work devoted to the principles of auscultation, a very useful manual in his investigation of this essential means of diagnosis at the bed side, where alone any certain and accurate knowledge of it can be acquired.

The pathological and therapeutical observations of Dr. Blakiston in reference to some of the leading diseases of the thoracic organs, are, we are assured, the faithful report of facts observed in private and hospital practice. In almost every one of the one hundred and twenty-two cases, the details of which are introduced in the volume, the symptoms during life were witnessed and noted down by the author: and, in the event of death occurring, he was either present at the examination, or inspected the diseased parts after their removal. Dr. Blakiston, therefore, holds himself responsible for the accuracy with which the cases have been observed, and the fidelity with which they have been reported.

The work is, therefore, to be received as a record of the personal experience of the author, rather than as a systematic treatise on the diseases which it embraces; and it is this feature which gives to it its chief value and authority.

The affections of the chest, to which the observations it records refer, are thoracic aneurism, chronic heart disease, circumscribed pleurisy, chronic pleurisy, plastic pneumonia, and phthisis pulmonalis. Upon the causes, symptoms, progress, diagnosis and treatment of each of which, the remarks of Dr. Blakiston will be found invariably interesting, and generally sound and instructive. The reader is notified in the preface that "there are certain views of treatment pervading these pages, which have resulted from the observation of disease in general, and of facts more numerous than those brought forward in this work." These relate to the substitution of mercury for venesection in acute inflammations, more especially those affecting serous and fibrous membranes, and to the employment of tonic in combination with sedative remedies in a large class of chronic disorders. Such views are not peculiar to the writer, but still, they are by no means universally adopted, or carried out in practice. As they are, in his case, principally founded on cases that have occurred in a populous manufacturing district, they may be considered, perhaps, as inapplicable to the inhabitants of other localities, where the nature of the employment and the surrounding atmosphere have a more invigorating effect on the constitution. A slight allowance, the author thinks, may possibly be required for this difference in circumstances; at the same time it must be borne in mind, he adds, "that many cases were observed among the higher classes, to whom this remark does not apply. Some old practitioners, of sound judgment, are of opinion that depletion can be less borne by persons in general at the present time than it could be forty or fifty years ago. There is probably some truth in this, for, in proportion as civilization advances, and commercial enterprise is extended, the mind is more exercised, and the nervous system more taxed, so that to a certain extent the constitution is thereby impaired and debilitated. Be this as it may, it will hardly be denied by any that venesection has been, and is still practised with too little caution and discrimination."

We cannot go to the full extent the author has in his opposition to venesection in the acute inflammatory diseases, for, however correct his remarks may be in reference to those diseases as they occur in the communities to which his practice was principally confined, they will not apply in all their force to the same class of diseases as they present themselves to the American practitioner. Nevertheless, many valuable practical hints may be derived from his exposition as well of the therapeutics as of the pathology of the several inflammatory and chronic affections of which he treats. D. F. C.

Art. XVI.—*On the Blood and Urine.* By John William Griffith, M. D., F. L. S., &c., G. Owen Rees, M. D., F. R. S., F. G. S., &c., and Alfred Markwick, M. D., &c, in one volume—pp. 182, 165, 113–460. Philadelphia: Lea & Blanchard, 1848.

The three treatises, contained in the volume before us, form a valuable addition to our yet scanty stock of works upon the blood and urine. The authors, whose separate productions have been thus collated, are well known for their industrious researches in the field of humoral pathology, and their opinions and observations are entitled to our fullest confidence. If it had been consistent with justice to them, we could have desired that the results of their individual labours might have been condensed into a single essay; a complete treatise would thus have been formed, and the reader spared the fatiguing recurrence of many statements necessarily the same in separate works treating of one subject. Although each of these has merits peculiar to itself, to which we will hereafter advert, they all possess in common the excellence of being clear in language and concise in detail, and the more intricate analytical processes are rendered intelligible to every one who is tolerably familiar with chemical manipulation. The professional chemist, as well as the student and practitioner of medicine, will find much in their pages worthy of his attention. They are, moreover, the most recent works that we possess upon medical chemistry, containing the latest additions which have been made to the science. There is hardly any branch of medical investigation which has received, of late, greater attention than this; it seems, too, to have taken at last the right direction in the subordination of premature theoretical application to a severe analysis of facts. As Dr. Griffith says, "To argue that such investigations are idle, merely because each new truth which is elicited is not immediately applicable to the elucidation of some point in the history of a disease, or to the improved application of remedial means for its alleviation, is as absurd as, unfortunately, it is frequent."

The first two of these manuals treat of the blood and urine; that by Dr Griffith is a "Description of the general, chemical, and microscopical characters of the blood and secretions of the human body," &c.; that of Dr. Rees, is "On the analysis of the blood and urine in health and disease, and on the treatment of urinary diseases;" and the manual of Dr. Markwick is entitled, "A guide to the examination of the urine in health and disease, for the use of students." It will be seen from this, that there are certain differences in the plan laid down by each of these authors, in consequence of which a full consideration of the whole subject is secured. The first of the works in the foregoing order, contains certain microscopical details, which are not touched upon in either of those which follow. The proximate principles are described before the compound fluids which they constitute; after which, an analysis is given of the more important healthy and morbid secretions. Dr. Griffith furnishes us also with a process adapted to the analysis of any fluid that may be presented for examination. His work will be found extremely convenient for reference, as it contains a great deal of information in a condensed form. As an illustration of the fullness with which several subjects are considered, we would refer to the description of the bile (p. 137), in which its following constituents: the cholic, choleic, cholinic, choloidic, fellinic and bilifellinic acids, besides biline, biliverdine, bilifulvine, taurine and dyslysine, are successively considered, and their chemical relations and physical properties enumerated.

The method to be pursued in making a quantitative analysis of the blood is given by Dr. Rees at some considerable length; it is not difficult, however, for the reader to follow this intricate process, step by step, as the description of it is conveyed in simple and unambiguous language. The mode recommended by him is that of Andral and Gavarret, with some few modifications, and is applicable before the coagulation of the blood. When this has taken place, Berzelius's method is to be employed. Both these and other processes are given in this work.

The analysis of the urine is exposed more thoroughly by Dr. Markwick than by either of the others, and contains, moreover, the later additions to the science not included by them. He also gives a greater variety of tests for the recognition of the elements of this secretion. A very useful tabular view of the abnormal ingredients of the urine is introduced, in which these are referred to their chemical and pathological causes as far as known The more profound study of the organic products found in this fluid is furthered by a number of chemical formulæ exhibiting their composition.

It would be difficult to specify all the interesting matters contained in these manuals, without extending this notice beyond its proper limits: we would, however, in conclusion, draw attention to the very excellent observations of Dr. Rees upon the treatment of urinary deposits. The greater number of the cases of phosphatic deposits, in which the urine is at the same time alkaline, are referred by him to a tendency in the surface of the mucous membrane of the urinary tract to the production of an alkaline fluid. He supposes that in these cases, a urine, too acid in quality, is secreted and becomes alkaline only after leaving the kidneys, in consequence of the irritation it produces upon the mucous membrane. His treatment is in conformity with this pathological view, and cases are introduced by him exemplifying its correctness. He says, "It may appear somewhat unaccountable to those who merely look to the chemical view of the matter, that any one should expect to render alkaline urine acid by the administration of alkalies, but such was the treatment I adopted, and the result fully corroborated the correctness of the theory which suggested it as a crucial test."

In order to exhibit the impropriety of making too hasty conclusions from chemical examination of the urine, he cites the supposition which has been entertained that cubebs and copaiba will produce albuminous urine, and affirms this opinion to be erroneous. Such urine, when tested with nitric acid, does, indeed, yield a precipitate greatly resembling albumen, but which is due to a vegetable matter contained in these drugs. As a proof of the correctness of this statement, he mentions that if the urine of patients treated with these remedies, be treated with ferrocyanide of potassium, after having been first accidulated with acetic acid, the vegetable matter will be but slightly affected, while the albumen, if present, would be at once precipitated He also states that, after the test with nitric acid, albumen soon sinks to the bottom of the vessel, but the vegetable matter will not do so until the urine begins to be decomposed. There may be much truth in these statements, but we do not think they are entirely satisfactory, for albumen has certainly been detected in the urine, by very experienced chemists, after the employment of these irritating remedies.

It has also been stated, that the use of mercury renders the urine albuminous. Dr. Rees gives a table containing fifteen cases which tend to disprove this assertion. All of these fifteen patients were salivated with mercury, and albumen was not found in the urine of any. Dr. Rees relates a case showing the *disappearance* of albumen from the urine in a case of Bright's disease, after the salivation of the patient.

To show the evil of relying solely upon the application of heat, as a test of the presence of albumen, Dr. Rees introduces a table, containing 482 cases taken promiscuously from the hospital wards, in 34 of which upon the application of heat to the urine there was a deposit resembling albumen, but consisting of the earthy phosphates. Thus seven per cent. of the whole number of cases might, by some persons, have been considered cases of albuminuria. "A little knowledge is indeed a dangerous thing," in hasty and over-zealous hands. We can sincerely commend these manuals to all desirous of information upon a subject of growing interest and importance; they can find it certainly nowhere more clearly and concisely exposed than here. We regret to note, in a work otherwise so well got up, a number of gross errors in typography, which in a reprint are hardly excusable.

M. S.

Art. XVII.—*Anniversary Discourse before the New York Academy of Medicine.* November 10th, 1847. By John W. Francis, M. D. Published by order of the Academy. New York: 1847. 8vo. pp. 112.

We have read with much gratification the discourse of Dr. Francis, as a well-timed, high-toned, and sensible appeal to the profession upon topics in which they are deeply interested: opening with a rapid survey of some of the striking peculiarities of the age, which render the first fifty years of the century the most remarkable connected with the history of man, Dr. F. observes, that a "remarkable characteristic of our Republic" is the principle of *association*, which is so powerful an agent whether for good or evil, and of which the advantages have been chiefly felt in its application "to self improvement and the augmentation of knowledge, to eleemosynary and charitable designs, and to fiscal experiments." It is under the first of these heads that the institution whose members he was addressing, was placed—an institution, resulting from the wants of the profession itself, and the community at large.

"An Academy of Medicine in this city (New York) was a moral necessity; it was demanded by the daily increasing perversion of a noble science, by the sullied dignity of an honourable vocation, by the predominance of evils of saddest issue, and by the long-neglected claims of injured humanity. This language cannot, I apprehend, be deemed too forcible, when contemplating the condition of practical medicine, in this our own day and generation. Yes, the venerable art of physic, rich with the achievements of the mightiest intellects, and the accumulated wisdom of more than two thousand years, with its divine claims of origin, and its vast train of blessings in our behalf, seems threatened with distrust of its noble capabilities, to have lost of its repute as a disciplined science among us, and to have surrendered its long-earned resources to the specious appearances, and absurd practices, which the necromancers and zealots of the darkest ages might hesitate to tolerate. How sadly such a condition of the profession harmonizes with the great objects of the sacred art! Philosophy can scarcely abide the reflections which spring from an examination of the causes which have led to the formation of this Association of the disciples of Æsculapius in behalf of their cherished science. That ignorance of the laws of life, of the rules of health, and of the remedial powers of medicinal substances, prevails to a wonderful degree, even in exalted places, is an incontrovertible position; and hence the innumerable calamities which popular delusion in the curative art entails. Most unfortunate for its victims, like fraud in fiscal concerns, it has a wider influence in its effects than with the immediate objects with whom it traffics. Its dire malignity is often extended through a large circle of the unconscious and unsuspecting.

"There is at times an obtuseness in the public mind in regard to the legitimate claims of the profession, a want of discrimination in recognizing the genuine tokens of success, and an absence of veneration for the dictates of experience. The new, the striking some wild fancy, or chimera, a system which appeals to the curiosity, or flatters the imagination, is often suffered to blind the vision of the multitude to the utility of positive knowledge, and the appeal to unaided truth. Insensible or indifferent to the responsibilities of the profession, countenance is given by individuals of high social position, equally as by the illiterate and the vulgar, to measures, the inefficiency of which has been proved by long established facts. The wisdom slowly but surely earned by positive experiment, is thus thoughtlessly put aside for the speculations of the hour, and absurdities a thousand times exposed. How deservedly contemptible, nay, criminal, may all this be pronounced, in an age which boasts its general intelligence! Yet what mind, of comprehensive views, that looks truth in the face, observes the relation of things, and calculates consequences, but must feel assured that this great enormity must lead to its own destruction, and that the hour of retribution must arrive. Its toleration cannot much longer be granted. The mischief which it engenders, wide as is its influence, assimilates little with the enlightened philanthropy of the times; it must disperse as the product of a period, portentious of novelties, too much devoted to sordid concerns, and criminally indifferent to the value of human life. Nor is there need of any marvellous sagacity to foretell the future. The abettors of these unhallowed schemes already appear dissatisfied with their own doings; and, distracted by the conclusions of their own understandings, already they begin to suspect the fidelity of their senses, and seem alarmed at the skepticism of their deluded victims. To hasten so beneficial an advent, to disenthral a people thus abused, on a subject of deeper interest than even wealth, according to popular estimation, is a design of no ordinary importance. More exalted motives to action in this deporable condition of medical practice, can never influence man in his associate relation, nor higher objects awaken his zeal, or greater good follow his efforts. With fixed intentions to exercise a duty which has become imperative, if we would claim the homage of pure disciples in our high calling, and in default of public solicitude, the errors and absurdities which beset us, to the disgrace of the Hippocratic art and the sacrifice of human life, must be visited with a wholesome supervision, both as a labor of love and as a duty the most exalted. A strenuous yet peaceable policy is to be cherished, and liberal maxims inculcated; yet between alternatives, a preference is to be given to a just and honourable maintenance of legitimate medicine, rather than a disgraceful repose when her proper sphere is invaded. Nor can a richer recompense be promised to the state at large from the measures which this Academy contemplates, in its potential character, by a wise exercise of its powers, and an unwavering prosecution of its disinterested designs."—pp. 9–12.

Upon this text, Doctor Francis enlarges through several pages, showing in a forcible manner, and with the warmth of an ardent votary of the science whose noble claims he vindicates, the errors under which society labours respecting it, and respecting these who are the honourable and intelligent exponents of its great and charitable mission. He warns the sound physician that while he has an abiding confidence in the great truths of his profession, and embraces that "philosophy which enlarges our powers and thus blesses us," he must not confound "it with that empiricism which robs us of our dearest possessions, and cripples the means on which humanity relies."

"It cannot be disputed that the widest difference exists between that wise conservatism which advances with cautious induction by known truths, to others still hidden, and that restless spirit of innovation, which, in order to secure its ends, spurns all control, and rejects the clearest demonstrations established by our predecessors for the best interests of man. I am ready to allow that every man's brains are not possessed of like faculties; and we know that there are unconscious dupes as well as artful knaves, and that the organ of credulity is in some cases of so disproportioned a size, as to usurp the controlling faculties of some of the best minds. But philosophy has her prescribed laws, and is tenacious of allegiance to them. She presents herself in the simplicity of truth: and if we would unlock her secrets, we are to pursue her with singleness of purpose, and in our process be consistent with ourselves. If she ask for bread we would not give her a stone. It is the mistaken, the perverted, the unhallowed treatment she receives from some who call themselves her disciples, and the evils which afflict society from this source, of which I complain."—pp. 20–1.

An indignant and high-toned lecture is then read to those who deny the profession as one which keeps not pace with the improvements of the age in almost every branch of knowledge, and we are told, not *ex cathedra*, but with the proofs of the statement placed before us, that so far from this being the truth, those who will compare the amount of knowledge of a very recent period with that at present in possession of the profession, will be astonished with the strides it has made.

"In short, the practice of physic has participated in every improvement, it has advanced by every discovery, and enriched itself with every new truth fitted to its designs. The answer seeks no equivocation; skepticism may hesitate, but the disciples of Apollo remain unshaken in the great truth: the science of healing, embracing practical medicine and the chirurgical art, never fulfilled its sacred mission to the measure and extent of the blessed powers it now summons to its trust."—pp. 31–32.

After some allusions to the improved statistics on which life-assurances are based, Dr. Francis says:—

"I should not have dared to detain you so long to disprove the declaration, that the profession is behind the age, reluctant of improvement, fearful of new principles, and contented with the knowledge of our forefathers. The utterance of such sentiments has often annoyed me, when I knew how hard we toiled to better the condition of the afflicted; what midnight cares absorbed us, what pains and penalties we endured, to become the successful prescriber; but this is not all: sentiments like these too often proceed from the enlightened members of the most sacred profession; and hence, actuated by the belief which such opinions sustain, they, with all their benevolence, superadded to the weight of their sacerdotal office, sustain theories, and give credence to alleged facts, which are often at war with the best established principles of medical science, and indirectly do harm to that calling which is like unto their own corporeal nature, demanding physical relief, as the immortal soul the support of divine counsel. There is not one among you, who is not qualified by experience to appreciate the bearing of these imperfect remarks; and sorry am I to say, that nothing other than my duty in discharge of the service I am summoned to perform, has led to an allusion to such occurrences. The Right Rev. Bishops of the Church of Great Britain, with their subordinates, who set forth in solemn testimony their convictions of the cures in diseases derived from Perkins' metallic tractors, humiliating as was the spectacle, impugned not the orthodoxy of their religious faith; but it would be difficult to exonerate them from blindness in observation, and fallacy in judgment, in medical affairs. Pope Innocent II. forbade all the clergy to meddle with physic. He was wrong in the universality of his prohibition. There are intellects in that order of men, who, with profundity in the requisitions of their own vocation, add the precious treasures of the heart and of the head, and can scan the grounds of our practice however astute may be the doctor. Yet, on the other hand, there are examples which show us, that even in the priesthood, as in the profession of the law, sometimes the most exalted in their specified pursuit are bad umpires in medical cases.

"I well remember an interview I enjoyed with the late Rev. Dr. John M. Mason, the unrivalled preacher of this country in days past. He had repeatedly travelled abroad, and extensively visited Great Britain. He was asked why he did not give to the public the results of his observation. 'Alas!' he replied, 'what sort of travels can I write? I neither understand the nature of the air I breathe, nor the water I drink, nor the earth I tread upon: my life has been appropriated to polemical divinity.' The frankness of this answer was characteristic of this honest and great man, who long bore the name of the American Paul. But no more. I should feel deeply aggrieved if these recitals on the art of healing led any to suppose I was deficient in reverence to the ministers of gospel truth. They have too many points of resemblance in their career with our profession, not to excite our esteem and affection: their office is humanity; their service springs from the grandest principles of our nature. We meet, together, in season and out of season, too often, the same objects of distress; we approach the same sufferer, and mutually commiserate his calamity; we are wearied in mind and in body by the same agonizing causes. We sympathize with each other in beholding the uncertain struggles of life with death; we are actuated in the ministration of our offices by a like spirit of benevolence; we know that our most certain recompense is our future reward; for few doctors, as few divines, leave this world with more riches than they first entered it. Like offices, like impulses, like sorrows, like gratifications, and like reflections endear us each to the other. These messengers of peace, to use the language of the Earl of Peterborough, are often most delicious creatures; and if we be enamoured of our art, we will foster them as auxiliaries in our extremest need."—pp. 35–37.

Without dwelling with the Doctor upon "the high requisitions both of the heart and head for the medical profession," requisitions which are essential to the successful pursuit of medicine, and which society has a right to make of those who offer themselves as practitioners, though public opinion has too frequently failed to recognize the essential moral dignity of the profession of which the "members are brought nearer to their fellow beings than any save those who have the authority of kindred," we pass on to where he shows that medical knowledge is identical with the progress of society, a position which he enforces with many apposite and striking proofs, and concludes this part of his discourse thus:

"I think I hear the interrogatory, what inference is to be deduced from facts like these, and a thousand others of a similar nature, that might be accumulated? That medicine is a science so broad in its relations, that in every state of society, as at every period of life, it is called in requisition; that it is appreciated at a high standard by the humblest and the loftiest communities; that the rude and uncivilized, the cultivated and the most refined nations, at the most elevated eras of their celebrity, have honoured the art and its professors; that its disciples have been favoured with becoming consideration, wherever the arts, erudition and philosophy have found claims to regard: that it is a progressive pursuit; that it finds circumstances favourable to its advancement in every stage of man's civil and political condition; that in its nonage, like the other sciences, it had its struggles with imperfections; that in the most refined periods of social organization, its cultivation is most mature, and its culminating point at nearest approach."—pp. 47–48.

After expatiating upon some of the promising features of their condition as inhabitants of New York, "from a conviction that a clear understanding of the elements of life makes evident the responsibilities of the profession they have associated to elevate," he proceeds to devote the large portion of the remainder of his discourse to a series of very graphic and well-drawn memorials of some of the departed worthies who have graced and done honour to the profession in New York—many of them tributes of personal respect and genuine labours of love.

The subject of medical improvement next receives, as it must that of every reasoning and candid physician, his hearty approval.

"There are desiderata, moreover, indispensable to entire success, which patriotism calls aloud for, and which the profession invokes. If the physical condition and moral eminence of a nation depend upon the healthy scale and intellectual tone of its people, and there is a wonderful connection between them, then does it behoove our rulers to do more in furtherance of the acknowledged designs of our Universities and Colleges; to aid with a liberal provision in promoting the higher as well as the common branches of professional science. The apparatus in our institutions ought to be more ample, so that our youth may need nothing to give them the fullest measures in quantity and in quality of that wisdom which can be turned to the best and most appropriate results. They may go abroad empty, and they may return filled with the learning of the schools; I shall always honour them for efforts thus made in these their laudable endeavours for knowledge' sake; but their efficiency as practical medical men is only to be secured by a proper course of study in their own land, by their becoming the observers of the diseases of their own climate, with the ethnological knowledge of those with whom they live and with whom they act. The sturdiest and most dexterous mariner on the broad ocean, may find himself a cast-away in navigating his bark on the uncertain waters of our inland seas, or by an unwarrantable confidence in the specious appearances of our mighty Mississippi. Climate has its diseases, and the topographical relations of a people will ever control their type and character. 'The immediate and diversified effects of climate,' observes an eminent American writer, Prof. Smith, of the University of the State of New York, 'are interesting to every class of persons; but to none is the study of its multifarious relations so important as to the student of medical science. Its direct influence in producing and modifying diseases and its subsidiary effects, in giving energy to causes which otherwise would be inactive, should be subjects of special inquiry with every one who wishes to attain that knowledge which will qualify him to discharge his public duties, and elevate him in the scale of professional reputation.' 'The glory of Hippocrates,' he adds, 'was derived not more from his sagacity as a pathological observer, than from his knowledge of the character of diseases, as affected by the influences of air, water, and localities.'

"Far be it from me to depreciate the talents and the attainments of the faculties of other countries. I have some idea of their worth, admire their noble and humane efforts, and do homage to their labours: but I have scarcely ever seen a European physician who came among us, who had not many things to learn over again, and to abandon some of the most cherished doctrines in which he had been taught, ere he proved a successful general prescriber for many of the maladies endemial among us. Climate, soil, habits, and occupation, nay, the very government of a people, must be understood by the physician."—pp. 89–91.

Dr. Francis then indicates some of the points that require careful and farther investigation, such as our native materia medica, cholera infantum, so terrible a scourge among us, but so little known in other countries, our endemical and epidemical fevers, &c., and suggests that advantage might well be drawn from the study of the diseases of the brute creation. The alarming adulteration of drugs sold as genuine in this country, deserves strict investigation, and our greatest efforts to put an end to such an iniquitous proceeding. One other train of diseases demand assiduous study, "the mental diseases, or rather the whole class of maladies traceable to the intimate connection between mind and body," a study which the doctor argues forcibly upon the attention of medical men.

Throughout this discourse, the various positions assumed are well reasoned, and illustrated with a freshness and vigour of intellect, which shows a mind constantly busied with the subjects on which it treats. It is truly able, and original, and shows in itself the advantages of the varied learning which it recommends.

C. R. K.

Art. XVIII.—*A Dispensatory and Therapeutical Remembrancer, comprising the entire lists of Materia Medica. Preparations and Compounds, with a full and distinct version of every Practical Formula as authorized by the London, Edinburgh and Dublin Royal Colleges of Physicians in the latest editions of their several Pharmacopœias: to which are subjoined copious Relative Tables exemplifying approved forms under which compatible medicines, &c., may be extemporaneously combined, &c. &c.* By John Mayne, M. D., L. R. C. S., Edinburgh. Revised, with the addition of the Formulæ of the U. S. Pharmacopœia, by R. Eglesfeld Griffith, M. D., &c. Lea & Blanchard: Philadelphia, 1848. 1 vol. 12mo. pp. 329.

This work, as its very full title-page indicates, is a compendium of the British Pharmacopœias, arranged according to a therapeutical plan, set forth alphabetically. It, of course, presents the formulæ and directions of the *three* Colleges appertaining to Great Britain, and at a glance enables the reader to observe their disagreement or conformity. The comparison of the three Pharmacopœias, thus facilitated, must lead to the regret that a system of uniformity was not adhered to, or in other words, that by a convention or association of the wise pharmaceutical heads of Scotland, Ireland and England, one Pharmacopœia was not framed which would better answer the purpose as a standard, and comport with the advance of science. Where physicians are in the habit of prescribing as they must do, according to the standard of their locale, that of another, except in the way of curiosity, is of little importance to them. An Edinburgh practitioner expects his prescriptions to be compounded according to the Edinburgh Pharmacopœia, and a London practitioner according to the London; there can be no choice in these places; if there be any exercised in favour of a better preparation, in a standard not his own, it is with some risk as regards strength, or considerable trouble to himself and the apothecary, who may keep but one preparation. A book of the present kind, then, we regard as an exposition of the absurdity of several standards in one kingdom, which evil we hope sooner or later to see abolished.

Those interested in the perfection of pharmacy in the United States, have striven to attain uniformity, and by the publication of the United States Pharmacopœia have obtained such a standard as required; this has been engrafted on the present work, and thus we have four Pharmacopœias presented to us between which to make a choice—truly a perplexing predicament, perchance, to him who is familiar with the merits of neither. Until uniformity be established, the necessity for a work, the motto of which should be *e quatuor unum*, may be sufficient to render the publication profitable; but we would rather see the excellencies of all more completely amalgamated, and the defects of all so eradicated as to present a work complete, perfect, and unhesitatingly authoritative.

Besides a difference in the formulæ, or rather in the quantities of substances which are used in the composition of preparations, as well as in the name employed to designate the same thing, a source of error lies in the disparity of the measures used by the several colleges. The Edinburgh and London employ the "imperial standard measure," the pint containing twenty fluidounces, while the Dublin and United States use the "apothecaries or wine measure," the pint containing sixteen fluidounces. This is stated at page 286 of the work, and may be overlooked; In adopting one or the other of some formulæ, an error of one-fifth in strength, either in increase or reduction may occur, if heed be not given to the standard measure of the authority directing the preparation. The tables of weights and measures should, we conceive, have been placed at the commencement. Conjoined with what Dr. Mayne claims as an originality, "namely, an unabridged *practical* formulary of the three British Pharmacopœias; and this in addition to a full amount of collective information as to the use, &c. of the different medicines and other important points relating to remedial means and appliances," there is another novelty, which is the association of extemporaneous formulæ, so placed under each head as to be distinct. The object of this is to show how articles and preparations may be combined and what are not incompatible. This is intended to be a help to prescribing and not a substitute for it, by presenting combinations already elaborated to suit cases, the quantities of each ingredient not being indicated.

A few pages at the end of the book are devoted to poisons, and their treatment.

As in this little volume are presented four Pharmacopœias it will prove exceedingly convenient for those who do not possess the originals, or who do not care to handle so large a work as the U. S. Dispensatory. To render it a little more so, we should have liked to see the translated Codex added. J. C.

Art. XIX.—*The Dublin Dissector; or, System of Practical Anatomy.* By Robert Harrison, M. D., M. R. I. A., &c. &c., Professor of Anatomy and Surgery in the University of Dublin. Fifth edition, Dublin and New York, 1847. 2 vols. 12mo., pp. 915.

This much esteemed companion to the dissecting table has undergone complete revision, and comes to us graced with a variety of cuts which speak volumes to the eye of the student. The author is very happy in his descriptions, and we think has given the best account of the anatomy of hernia extant, the careful perusal of which will amply repay the student. Much attention has also been given to the structure of the heart and its action, both of which are minutely described.

In speaking of the arrangement of the air cells of the lung, he says (after stating that several anatomists believe that the air cells communicate with each other in clusters), "My own observations on this minute structure, not merely in man, but in many other animals, lead me to concur in this opinion," but he fails to give credit to Prof. *Horner* for first announcing this arrangement.

So great a change has been brought about by the microscope, in the description of the central nervous system since the first edition of this work, that the terminology of the brain has been seriously altered, and it will be found that Mr. Harrison has kept pace with discovery; and his description of the brain and spinal marrow conveys a correct idea of the present state of knowledge on the subject.

The only objection we have to the book is its form (in two volumes), which tends to diminish its usefulness. P. B. G.

Art. XX.—*The Young Stethoscopist; or, The Student's Aid to Auscultation.* By Henry I. Bowditch, M. D., one of the physicians of Mass. Gen. Hospital. Second edition. New York: S. S. & W. Wood, 1848, 12mo. pp. 304.

Having already expressed our favourable opinion of this work on its first appearance (see No. for July 1846), it is sufficient, in announcing a new edition, to state that the author has embraced the opportunity to make some additions, so as to bring it up to the present state of knowledge, and to correct some inaccuracies that accidentally crept into the first edition. It is an excellent elementary treatise, clear, precise and accurate, and may, as such, be strongly recommended to the student.

Art. XXI.—*On Bandaging and other Operations of Minor Surgery.* By F. W. Sargent, M. D. Philadelphia: Lea & Blanchard, 1848. pp. 379. Small 8vo.

The object of the author in preparing this volume is to furnish the young surgeon and student with information relative to the art of bandaging, and the mode of performing some of the minor operations of surgery. The great importance of a familiarity with these subjects, is fully appreciated by every experienced surgeon, and yet they are but cursorily treated in the systematic courses of lectures, and the student can only become acquainted with them by long attendance on a hospital, or by reference to some work especially devoted to them. Dr. Sargent's small volume is exceedingly well suited for this purpose. It is comprehensive in its plan, and the arrangement of subjects is judicious—the descriptions are clear and precise, and the wood-cut illustrations are numerous, amounting to 127, and most of them extremely well executed.

The work is divided into five parts. The first embraces a description of the implements with which the ordinary duties of the surgeon are accomplished.

"The second treats of the composition and preparation of Bandages, of their application to the different regions of the body, and of the purposes which they are thus made to subserve.

"The third is devoted to the consideration of the apparatus of various kinds, used in the treatment of fractures. In the arrangement of this portion of the volume, the author has thought it expedient to give pretty full details, showing the indications of treatment in each particular case of fracture, and thereby rendering more manifest the adaptation of each bandage, splint, or other dressing, to the fulfilment of these requirements.

"The fourth division describes the mechanical means employed in the treatment of dislocations, with the mode of applying them.

"In the fifth part are detailed at length the methods of performing such operations as seem strictly to be included in the term "Minor Surgery:" these are the operations for bleeding, general and local; the modes of effecting counter irritation;—the methods of arresting hemorrhage; the closure of wounds; the introduction of the catheter, and the administration of injections. A few remarks on the mode of relieving pain during operations, and a short appendix of useful formulæ, close the volume."—p. viii.

We can unhesitatingly recommend this volume as one of the very best of its class, and as furnishing a vast amount of information which it is essential for the young surgeon to know, in order to perform his daily duties with advantage to his patient, and satisfaction and credit to himself.

Art. XXII.—*Elements of Natural Philosophy: being an Experimental Introduction to the Study of the Physical Sciences.* By Golding Bird, A. M., M. D., F. R. S., F. L. S., Fellow of the Royal College of Physicians; late President of the Westminster Medical Society; Corresponding Member of the Philosophical Institute of Basle, of the Philosophical Society of St. Andrews, of the Medical Society of Hamburgh. etc.: Assistant Physician to, and Professor of Materia Medica at Guy's Hospital. With three hundred and seventy-two illustrations. From the revised and enlarged third London edition. Philadelphia: Lea and Blanchard, 1848, 12mo. pp 402.

This volume is chiefly intended as a text-book for the student, whilst attending lectures on physics, or as preparatory to his entering upon the study of larger or more elaborate works. Its compilation was suggested by the absence of any system of physics, sufficiently extended to include all those subjects with which men of education, especially members of a liberal and important profession like that of medicine, ought, and are required, to be familiar with; and at the same time, not too diffuse to disgust or weary the student.

It is wholly unnecessary to discuss the importance of a knowledge of physics to the medical student. It teaches him the laws which govern some of the most important functions of animal organism,—explains the manner in which certain fractures, dislocations and various other surgical accidents are produced, and affords important suggestions as to the best mode of treating them.

Dr. Bird's well digested and concise volume fulfils the object for which it was designed, and diminishes the regret we have long felt that Mr. Arnott should have abandoned his design of completing his admirable treatise on the same subject.

Dr. B.'s work is divided into two sections. The first treats of the physics of imponderable matter, and embraces the following subjects:—Elementary laws and general statistics; general dynamics, simple machines; physics of liquids at rest; physics of aerial fluids at rest; general properties and laws of fluids in motion; sonorous vibrations of ponderable bodies.

Section second is devoted to the physics of imponderable matter, including the subjects of—Magnetism; ordinary, atmospheric and voltaic electricity; electro-chemical decomposition; electro-dynamic induction; thermo-electricity; physiological electricity; light; optical apparatus and the eye considered as an optical instrument; heat, and photography.

From this table of contents it will be observed that the scope of the work is very comprehensive, and that especially no subject of interest to the medical student has been omitted.

ART. XXIII.—*Principles of the Mechanics of Machinery and Engineering.* By JULIUS WEISBACH, Professor of Mechanics and Applied-Mathematics in the Royal Mining Academy of Freiburg. First American edition. Edited by Walter R. Johnson, A. M., Civ. and Min. Eng., formerly Professor of Mechanics and Natural Philosophy &c. &c. In two vols., illustrated with one thousand engravings on wood. Philadelphia: Lea & Blanchard, 1848. 8vo. pp. 488.

Chemical Technology; or, Chemistry applied to the Arts and to Manufactures. By Dr. F. KNAPP, Professor at the University of Giessen. Translated and edited, with numerous notes and additions, by Dr. Edmund Ronalds, Lecturer on Chemistry at the Middlesex Hospital, and Dr. Thomas Richardson, of Newcastle-on-Tyne. First American edition, with notes and additions, by Professor Walter R. Johnson, of Philadelphia. Illustrated with two hundred and fourteen engravings on wood. Philadelphia: Lea and Blanchard, 1848. 8vo. pp. 504.

THOUGH not medical works, we may be allowed to call attention to these volumes, as they are devoted to the elucidation of subjects with which every man of education should be acquainted, and in the first named volume especially, the surgical student will find much information which he may turn to advantage in his practice.

These volumes are numerously and most beautifully illustrated, and are issued in a style creditable to the enterprise and liberality of the publishers.

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *On the Channels by which Urea is eliminated after the extirpation of the Kidneys.* By MM. Bernard and Barreswil.—When the kidneys are extirpated in animals, urea accumulates in the blood; but several days pass over before any appreciable quantity is present. The authors, supposing that during this period the urea must have some other channel of excretion, have analyzed the biliary and intestinal secretions at different periods after extirpation of the kidneys in animals. They find that, so long as the animal remains lively, the intestinal, and more especially the gastric, secretions are increased in quantity, and, instead of periodic, become continuous; acquiring at the same time a considerable impregnation of ammoniacal salts. The subsequent diminution of the intestinal secretions, and of their ammoniacal ingredients, is accompanied by the first presence of urea in the blood, and the first symptoms of its poisonous effects. As the salts of ammonia are not normally constituents of the intestinal secretions, it is clear that this is a vicarious elimination of nitrogenous effete matter; and that the urea is secreted in substance by the intestinal mucous membrane and afterwards transformed into ammonia, is rendered highly probable by the fact, that chemically these substances are interchangeable, and that urea, when introduced into the stomach of a living dog, is always replaced by ammoniacal salts.—*Monthly Journal and Retrospect of Medical Sciences*, April 1848, from *Archives Génerales de Médecine.*

2. *On the Effects of the Introduction of Common Salt directly into the Stomach.* By M. Bardeleben, of Giessen.—On introducing, by a fistulous opening through the abdominal parietes, a small quantity (45 grs.) of domestic salt into the empty stomach of a dog, a series of phenomena was constantly observed, which does not take place when the same quantity is taken by the mouth. Every part of the membrane in contact with the dry salt secretes very rapidly a nearly colourless mucus, varying in quantity. The stomach is then thrown into brisk contraction; the animal is agitated and uneasy, and is seen to swallow large quantities of saliva. The respiration is accelerated, and in four or five minutes vomiting is produced. After the vomiting has ceased, the gastric juice is frequently, though not invariably, alkaline. This alkalinity of the gastric secretion is frequently met with in the empty state of the stomach, or even after the introduction of indigestible substances, such as sponge or pebbles; but during digestion the secretions of the stomach are always acid. The above described action of salt is peculiar to it; for pepper, which is regarded as a much more irritating substance, is very well borne, and increases the gastric secretions without provoking any of those contractions and vomitings described.—*Ibid.*

3. *Non-absorption of Narcotic Poisons*, (*Prov. Med. and Surg. Journ.*, May 1848).—It has been established by numerous experiments, that when the circulation through a part has been interrupted, a narcotic poison introduced does not exert

its specific action on the system. To account for this, three propositions have been advanced. 1st. That the poison is altered and rendered inert in the lymphatics. 2d. That it cannot enter them. 3d. That having entered, it cannot be conveyed by them. The first is opposed to facts; the second supposes a difference between the structure of veins and lymphatics, which has never yet been demonstrated. The third hypothesis was advanced by Henle, who conceives that, like other fluids, narcotic poisons are taken up by the lymphatics, according to the general laws of permeation and imbibition, but that the poisons, acting on the coats of these vessels, destroy their irritability, and incapacitate them from conveying their contents.

This hypothesis appears sufficiently plausible. The topical application of opium to the intestines destroys their peristaltic action. Aconite, infusion of tobacco, and other narcotic poisons, when absorbed from a wound, and carried by the circulation to the heart, paralyze this organ, and render it unable to contract on its contents. Finally, it can be shown that lymphatics, placed under the influence of a narcotic poison, are disabled from conveying into the system not only the poisonous agent, but also inert solutions, which, under normal conditions, they absorb with facility.

Mr. E. W. Day, of Birmingham, with a view of solving this question, instituted the following experiments, in which he exposed to the absorbing power of the lymphatics in the normal condition, and under the influence of a poison, two salts, both known to be readily absorbed by these vessels, and both susceptible of ready recognition in the secretions:—

(*Exp.* 1.) The abdominal aorta of a middle-sized dog was tied below the origin of the renal arteries. Into a wound of the right hind extremity, near the foot, were now introduced ninety drops of a saturated solution of acetate of strychnia, followed by one hundred and twenty drops of a solution of iodide of potassium, (in the proportions of one drachm of iodide to one ounce of water.) In a similar wound of the opposite limb were introduced one hundred and twenty drops of a solution of ferrocyanide of potassium of the same proportions. After the lapse of two hours and a half, no symptoms of poisoning having appeared, sixty drops of the solution of strychnia were dropped into the wound in the abdomen. In ten minutes convulsions ensued, and the animal died tetanic. The bladder was removed, and the small quantity of urine contained in it received into a test tube. On the addition of a drop of solution of persulphate of iron, there at once appeared a bulky precipitate of Prussian blue, which presented a greenish hue, owing to the deep yellow colour of the urine. The fluid was filtered, the precipitate washed, and to the filtrate were added a few drops of chlorine water, followed by solution of starch. No change became apparent.

(*Exp.* 2.) The abdominal aorta of a dog was tied. To a wound of the right hind foot was applied a mixture of thirty drops of hydrocyanic acid, (containing about forty per cent. of anhydrous acid,) with one hundred and twenty drops of solution of ferrocyanide of potassium. Into the opposite limb were introduced one hundred and twenty drops of solution of sulpho-cyanide of potassium, (containing one drachm in one ounce of water.) No sign of the action of the poison having appeared in two hours and a quarter, the animal was killed by introducing into the wound of the abdomen ten drops of the acid. The bladder was removed and the urine received into a test tube containing a few drops of solution of persulphate of iron. It immediately assumed a blood-red tint, but underwent no further change. To the fluid was now added a little sulphuric acid, and after the subsidence of a slight effervescence which ensued, a slip of pure zinc was introduced. In the gas which was evolved, sulphuretted hydrogen could be distinctly recognized by the odour, and a slip of lead paper was blackened by it. The fluid had now lost its red colour.

(*Exp.* 3.) A third experiment was conducted in a similar manner. Into the right hind foot was introduced a mixture of one hundred and twenty drops of solution of sulphocyanide of potassium, with forty drops of prussic acid; into the opposite limb one hundred and twenty drops of solution of ferrocyanide of potassium. After the lapse of an hour and three-quarters, the animal having shown no indication of the action of the poison, was killed almost instantaneously by introducing into the wound of the abdomen a few drops of the prussic acid. The urine was received into a tube containing solution of persulphate of iron. A distinct blue deposit left no doubt of the presence of ferrocyanide, whilst the unaltered colour of the supernatant fluid indicated the absence of the sulphocyanide.

From these experiments Mr. Day concludes: 1. That strychnia and prussic acid cannot be conveyed into the system by the lymphatics. 2. That the non-absorption of these poisons is due to a specific action exerted by them on the coats of the lymphatics, by which the irritability of these vessels is destroyed, and they are rendered incapable of transmitting their contents.

From the dissimilarity in the operation of strychnia and prussic acid, it may be reasonably inferred, that most other poisons belonging to the same class will, on investigation, be found to conduct themselves in the same manner towards lymphatic vessels.

4. *Lymphatics of the Lungs.*—Dr. Jarjavay has given, in the *Archives Générales de Méd.*, (Jan. and Feb. 1847,) a very elaborate account of the lymphatic vessels of the lung; he arranges them, for convenient description, into plexuses, and vessels properly so called, and these are superficial and deep. The *superficial plexuses* are spread upon the lung beneath the pleura; they present varieties in the form of the meshes, which are lozenge-shaped, or round, or variously angular, in the size of the vessels, and in the moniliform character of some. These last are chiefly those in the fissures, and the swellings on them are sometimes of considerable size, whilst the alternating narrow part sometimes impedes, or wholly stops, the flow of mercury through the vessel; this character is named *varicose* by the author, and the simpler condition is distinguished as *capillary.* It is common to find the capillary vessels occupying chiefly the surface of the upper lobe, and a portion of the lower, but the varicose, without exception, in the fissures and on the median face of the lung, especially about its root. The lymphatic plexuses at the borders of the lung, consist of straighter vessels, and are, in fact, the secondary trunks, which in turn discharge themselves in two or three principal vessels; these are, for the lower lobe, two constant and a third occasional; they range the angles of the lung more or less parallel to it, and terminate in the bronchial lymphatic ganglions. The "*vessels*" of the upper and middle lobes are more numerous; they occasionally dip under the surface, because they are overlapped by a lobule, but they always reappear; they assemble to terminate in the bronchial ganglions. It is worthy of remark that the black matter so constant in the lungs, has its seat in the track of the vessels of the varicose plexuses, and thus the pattern of these is mapped out by that black substance. Occasionally, pale lines mark out sundry black spots, these indicate swellings of the lymphatics, and it has often occurred to the author to inject the vessels by plunging his pipe into one of these spots. The *deep plexuses* are said to be those of the mucous membrane of the bronchi, but the author has failed to perceive their primary union with trunks. The *deep vessels* run between the large trunks of the bronchi and those of the pulmonary artery. To the question of how the lymphatics of the lung come into connection with those of the heart, and finally with the thoracic duct, the author's injections have failed to afford a satisfactory answer; he finds, however, that, for the most part, ganglions seated about the roots of the lungs receive the vessels, although he has noticed branches go directly to the thoracic duct, and in other cases join the diaphragmatic, œsophageal, &c. &c. The ganglions about the left bronchus also receive the lymphatics of the heart, which reach them after following the curve of the aorta.—*Report on Anat. and Phys.*, in *Ranking's Abst.*, vol. vi.

ORGANIC CHEMISTRY.

5. *Oxalate of Lime a Constituent of the Simplest Cellular Plants and of the Secretion of the Mucous Membranes.* By Dr. C. Schmidt of Dorpat.—In yeast, which had been left to itself for three weeks, the author observed the formation of a crop of beautiful crystals of oxalate of lime. By a series of careful experiments, he ascertained that this salt existed ready formed in the yeast cells, and could be extracted from them when perfectly fresh; and he concludes, from various circum-

stances, that it must be dissolved in the fluid contents of the cell, as a compound of oxalic acid, albumen, and lime (*oxalsaures albuminkalk*).

As regards the elimination of oxalate of lime from the system, the author considers it impossible that, in the oxalic acid diathesis, it can be found in the stomach, experiment having shown that, when the oxalate of lime is swallowed, it is never found in the urine, the oxalic acid being oxidized in its passage through the system, and thrown off by the lungs and kidneys in the form of carbonic acid. He has never in any case found oxalate of lime, either in the saliva or gastric juice, but very frequently in the urinary sediments. Now, oxalate of lime is totally insoluble in fresh urine, and as, from the structure of the secreting portion of the kidney, it is impossible for the urine to carry with it any insoluble matter, he infers that the oxalate must have a different source from the urea and uric acid, &c., of that fluid; and he concludes that it is a secretion of the mucous membrane of the kidney, and even of the bladder itself, from which it is probably thrown off in the form of the soluble compound above mentioned, and precipitated in the insoluble form by contact with the urine. In proof of this position, he points out that morbid increase of the vesical mucus is always attended by an increase in the oxalate of lime. That this salt is also found in the bile, where it is held in solution by the biliary mucus, and is precipitated when that substance undergoes decomposition, but not till then, as the bile does not, like the urine, possess the property of bringing it into the insoluble state. And lastly, which is his strong proof, he has invariably found the oxalate of lime present in the mucous membrane of the uterus during pregnancy.—*Monthly Journal and Retrospect of Medical Sciences*, April, 1848, from *Annalen der Chemie und Pharmacie.*

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6. *On the Variations in the Amount of the Phosphatic Salts in the Urine in Health and Disease.* By Dr. Bence Jones.—"Mulder has shown, that in inflammation, one of the albuminoid constituents of the blood passes into a higher state of oxidation than that in which it usually exists. Oxides of protein, as he has called them, form the inflammatory crust. Indeed, the whole of the fibrin of the blood is changed into these substances. This alone would give us some reason for expecting, that in inflammations of particular organs, the constituents of these organs would be affected in a similar way. For example, that in inflammations of the brain, we should find the phosphorus of the phosphorized fats oxidized, forming phosphoric acid.

"Now, after a long-continued experiment, which I have been enabled to make on the appearance of phosphatic salts in the urine, the result of nearly a hundred cases of disease, and of many hundred quantitative analyses, has been, that acute affections of the nervous substance, organic and functional, are the only diseases in which an excess of phosphatic salts can be proved to exist in the urine. By phosphatic salts, I do not mean the earthy phosphates alone, but the alkaline phosphates as well as the earthy ones. I obtained and weighed not only the earthy phosphates, but the earthy and alkaline phosphates together—thus determining the total phosphatic salts present in the water. If it could be obtained, the water first passed in the morning was used for analysis; for I found it impossible to obtain, with any approach to accuracy, the whole quantity passed in the twenty-four hours. Had this been possible, it is probable that chronic diseases would have furnished me with positive results.

"It was necessary, before beginning my experiments on disease, to trace the variations and their causes in the state of health.

"1. I found that the earthy phosphates varied soon after food from 1·91 per 1000 parts of urine, specific gravity 1033·2, to ·97 per 1000 urine, specific gravity 1027·3.

"Long after food, they varied from ·75 per 1000 urine, specific gravity 1028·0, to ·20 per 1000 urine, specific gravity 1028·2.

"The alkaline phosphates, long after food, and soon after exercise, vary from 8·10 per 1000 urine, specific gravity 1028·0, to 6·50 per 1000 urine, specific gravity 1022·8. Soon after food, the quantity varied from 6·67 per 1000 urine, specific gravity 1025·5, to 4·72 per 1000 urine, specific gravity 1033·2.

"Sulphate of magnesia, chloride of calcium, or lime water, taken into the stomach, increased the earthy phosphates at the expense of the alkaline phosphates. After sulphate of magnesia had been taken as medicine, the earthy phosphates were found to increase as high as 2·99 per 1000 urine, specific gravity 1027·6; and in a second case, up to 2·93 per 1000 urine, specific gravity 1026·2. The amount of alkaline phosphates was found by experiment to be chiefly influenced by the diet, and to a less extent by exercise.—*Philosophical Transactions*, 1845. I then passed on to the amount of phosphates in disease.. I found the variations in the earthy phosphates to be almost independent of the nature of the disease.

"2. In fractures of the spinal column, and in paraplegia, the total amount of the phosphatic salts was slightly above the healthy standard at the early period. When chronic, the total quantity of phosphatic salts was lower than natural.

"3. In some acute diseases, as acute inflammations and fevers, showed no increase.

"4. In some chronic diseases, as Bright's disease, dropsies, scrofulous diseases, exostosis, there was no increase. One case of mollities ossium presented a marked exception.

"5. In chronic diseases of the brain, and in chronic or even acute diseases of the membranes, there was no increase of phosphates.

"6. In fractures of the bones of the skull, when any inflammation of the brain supervened, there was an increase in the total amount of phosphatic salts. When there were no head symptoms, no increase of phosphates was observed, even though other acute inflammations supervened.

"7. In the general paralysis of the insane, no increase of phosphates was observed. Other insane patients presented nothing very remarkable.

"8. In acute inflammations of the brain, there was an excessive amount of phosphates secreted. When the acute inflammation became chronic, no excess was observable.

"9. In some functional diseases of the brain, an excessive amount of phosphates was secreted; this ceased with the delirium. In other cases of delirium, the phosphates were found to be greatly diminished."—*Lancet*, July 29, 1847.

7. *Urea in Normal Sweat.*—Dr. Landerer has obtained a considerable quantity of urea from the flannel shirts of several persons who had been perspiring freely. In addition to urea, he has also obtained chloride of sodium, traces of sulphates, acetates and lactates, osmazome, and a substance soluble in ether.—*Hellers' Archives*, vol. iv.

MATERIA MEDICA AND PHARMACY.

8. *Proteine as a Medical Agent.*—E. W. Tusson states (*Medical Times*, April 22, 1848,) that he has prescribed proteine extensively with very beneficial results as a medical agent, and one calculated to produce a favourable termination in most cases of caries; also in some cases of scrofula, extensive ulcers, debility, diseases of the gums and teeth, rickets, undue lactation, and insufficient secretion of milk. In infancy, where debility exists, and where the functions are not duly carried on, and in some affections of the spine, five grains once or twice daily, will be sufficient for a child, and ten or twelve grains for an adult. He orders it to be taken as a powder, dry, or upon bread and butter.

9. *Aqueous Solution of Opium, acidulated with Muriatic Acid.*—Dr. J. G. Nichol gives the following formula for this preparation of opium, which he says he has used for the last ten or twelve years, and extols as the best anodyne he has ever used.

Take of the best powdered opium ʒj; muriatic acid ʒj; distilled water ʒxix. Mix. Shake the mixture frequently every day during fourteen days, then strain and filter. The dose is from twenty to forty drops, according to circumstances.—*Med. Times*, April 15.

10. *Iodized Oil.*—This preparation has superseded the other forms of iodine at

the Val-de-Grace. M. **Marchal** (de Calvi), reasoning from the fact of the virtues of cod-liver oil being due to the small portion of iodine it contains, concluded that a far more useful preparation of this substance than the iodide of potassium is found to be, might be made by combining it with an organic body. In this way a more complete assimilation of the substance, or, at all events, its longer retention in the economy, might be secured. He chose an oily body, because this, forming an emulsion with the bile, would allow of the substance being digested in the small intestine, and enable the stomach to become relieved of its presence. In this way, far larger doses can be administered, if requisite, without irritating the latter organ; while the iodine is eliminated by the urine much more slowly and in far less quantities than is the case with the iodide. The trials which have been made are very satisfactory in their results, the progress of the cure of buboes and other glandular enlargements being much expedited. The iodine is dissolved in fresh almond oil as wanted, in the proportion of 1 part to 15; and this is afterwards worked up into an almond emulsion. The minimum dose is one grain.—*British and Foreign Medico-Chirurg. Review*, April 1848, from *Gazette des Hopitaux*, No. 13, 1848.

11. *Tartrate of Potassa and Iron.* By M. **Mialhe**.—Although this compound, long known to chemists, has been but recently much employed in medicine, it possesses properties superior to most other martial preparations. Although it contains above 30 per cent. of the peroxide of iron, its ferruginous flavour is so slight, that it may be tolerated by stomachs which reject all other preparations of iron. It is very soluble, and as alkalies do not decompose the solution, it is as capable of absorption amid the alkaline juices of the intestine as in presence of the gastric acid. Moreover, it causes no constipation. It can, therefore, be well employed in all the pathological conditions demanding the use of iron, and especially such as require it in large doses, as the syphilitic cachexia. In a case related it changed, after long use, the colour of the hair from fair to dark, "a point well worthy the attention of physiologists and physicians, for it proves that, on the administration of iron, it is solely by the hairs that the excess of this metal is excreted, as M. Dumas had already supposed; for certainly to sulphuret of iron was the colour due in this case." The drug has been said to give rise to diarrhœa, but this it does only when adulterated, which it very often is. Nothing, however, can be easier than for practitioners to prepare it for themselves, since for this it suffices to act upon an excess of peroxide of iron by cream of tartar, dissolved in six or seven times its weight of water, in the bath used for the preparation of extracts. As soon as the saturation is completed, which it is recognized to be by the deep red colour and the sweetish flavour acquired by the liquor, it is to be filtered and evaporated. The salt may be given in the form of pills prepared with mucilage, or, better still, with *oily mucilage*, which is composed of 200 parts of gum Arabic, 100 of sugar, 100 of almond oil, and 250 of water, and by means of which the pills may be very rapidly prepared. From two to eight five-grain pills, or more, may be taken daily. Children will very readily take a syrup formed of simple syrup 500 parts, the tartrate and canella water, of each 16 parts.—*Ibid.*, from *L'Union Médicale*, No. 2, 1848.

12. *External Employment of Belladonna.*—Mr. **Donovan** recommends (*Dublin Medical Press*, May 31, 1848) the substitution of atropa for extract of belladonna in liniments, as making a more cleanly and elegant preparation, and one of more certain strength. Atropa is very soluble in alcohol, although it requires five hundred times its weight of water for solution. The common belladonna liniment can therefore be prepared by dissolving two grains of atropa in four ounces of compound camphor liniment; the solution takes place instantly, and an elegant compound results.

If an oily liniment is required, two grains of atropa may be dissolved in half an ounce of alcohol; the solution has the property of dissolving castor oil, and forming a permanent solution; two ounces of it are to be added, and the mixture to be well shaken.

MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

13. *Treatment of Phthisis Pulmonalis by Cod Liver Oil.* By Dr. Hughes Bennett.—The effect of the oil in many cases of phthisis is very striking, and is well seen in hospital and dispensary practice. Individuals presenting emaciation, profuse sweats, constant cough and expectoration, as most prominent symptoms, with a degree of weakness that prevents their standing alone, after a few weeks' use of it are enabled to get up with ease and walk about, with a visible improvement in their general health, and an increased amount of flesh. The physical signs of the disease may continue unaffected for some time; but if the treatment be continued, the moist gurgling râles are exchanged for dry blowing sounds, which become more and more persistent, pectoriloquy is merged into bronchophony, the respiration is easier, and a check is evidently given to the ulcerative process, and the formation of purulent matter in the air-passages. In this state, patients often feel themselves so well that they insist on leaving the hospital, or give up their attendance on the dispensary. Dr. Bennett has frequently found it impossible to prevail on such persons to continue the treatment, and the consequence is, that, again returning to their often unhealthy employment and bad diet, and exposed to the other causes favourable to the production of the disease, the distressing symptoms again recur. Several cases, with one or more caverns in the lungs, have in this manner returned to the Infirmary from four to seven or eight times during the last six years, and on each occasion have gone out in their own opinion perfectly cured.

Notwithstanding the difficulties which have presented themselves in bringing about a complete cure of the disease, Dr. Bennett has succeeded, in several cases, in ascertaining that caverns have completely healed up, every symptom and physical sign indicating their presence having disappeared, and only slight dullness on percussion, and increased vocal resonance remaining as a proof of the puckering and induration of the pulmonary parenchyma attendant on the cicatrix. He gives two unequivocal cases where this occurred, and alludes to others which he purposes publishing at some future time.

Most cases of phthisis pulmonalis, especially in the advanced stage, are affected with more or less dyspepsia, which renders the stomach irritable, causes total loss of appetite, and is often the cause that prevents nourishment from being taken. In many instances there is no difficulty in employing the oil under these circumstances, but in others it cannot be retained on the stomach. It will then be necessary to calm the irritability of the organ, and the best remedy for this purpose, according to Dr. B.'s experience, is naphtha. It is to the power this substance possesses of checking vomiting, and thereby allowing nourishment to be retained, that he attributes the advantages which have attended its use in the practice of Dr. J. Hastings, and others. The diet should always be nutritive, without being stimulating; and counter-irritation to the chest is an excellent auxiliary. This treatment should be perseveringly persisted in; whilst, to prevent fresh exudations of tubercular matter, an equable temperature is of the highest importance. To equable temperature must be ascribed the advantages of favoured localities for phthisis, and with proper precautions it can be very well maintained in this climate.—*Monthly Journal and Retrosp.*, May 1848, from *Bennett on Cod Liver Oil.* Edinburgh, 1848.

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14. *Case of very extensive Gelatiniform Cancer of the Peritoneum, involving the Lymphatic Glands of the Abdomen and Ovaries. and stimulating Ascites.* By Edward Ballard, M. D.—A married woman, aged 55 years, became a patient under Dr. Ballard's care, at the St. Pancras Dispensary, on January 17th last. She stated that for twenty-seven years she had been subject to more or less epigastric pain. Between the ages of forty-five and fifty-two years she had suffered from an almost constant and very debilitating menorrhagia. At that time, also, there was an increase in the epigastric pain—which was occasionally relieved by an aperient—with the evacuation of mucus and membranous shreds, and a tumour was discovered beneath the margin of the ribs on the right side. In June, 1846, she

slipped from some steps; a prolapsus of the wound followed, and she wore a pessary for three months. At this time the uterus ceased to prolapse, but she noticed the abdomen begin to enlarge, first at its lowest part; and she perceived a tumour in the hypogastrium, which, with that before detected, disappeared as the abdomen generally increased in size. About Michaelmas, in the same year, she struck her abdomen violently against a post, since which accident all her symptoms had been aggravated, the enlargement continuing to increase. She began to vomit a few months previously to her admission at the dispensary. On being visited, she presented the appearance of a person labouring under some severe organic disease, and was considerably emaciated. The abdomen was greatly enlarged, dull on percussion generally, and fluctuating most distinctly; it encroached very much upon the limits of the thoracic cavity. The umbilicus was remarkable in being stretched and flattened out, and not prominent, as is customary in ascites. The case was believed to be one of ascites, arising from cancerous disease about the larger divisions of the portal vein, and under part of the liver; fibrous tumour of the uterus was detected, and encysted ovarian disease believed to be likewise present. She was tapped on the 24th, but only a teaspoonful of clear jelly passed from the trocar, and she died on the 26th. On examination of the body, the peritoneal cavity was discovered to be full of a firm and very tenacious gelatinous matter, emitting a very sickly odour. A large ruptured ovarian cyst, containing a similar matter, occupied the lower part of the abdomen; and there were several smaller cysts about the inlet of the pelvis. The whole peritoneal surface of the abdominal wall and diaphragm was infiltrated with colloid cancer, as also was a considerable part of the peritoneal coat of the liver and spleen. There was a large tumour lying upon the right side, which was formed by the omentum and mesocolic glands converted into colloid; and the mesenteric glands, with those about the under surface of the liver, were similarly affected. This diseased mass was connected below with a fibrous tumour of the uterus. All the gelatinous products, wherever found, presented the characteristic cells of cancer. (All these appearances were illustrated by preparations and drawings.) In commenting upon the case, the author introduced his remarks by observing that, although colloid cancer of the peritoneum was not of very unfrequent occurrence, he had failed in his search after a case at all approaching it as regards extent, and had been unable to discover another recorded instance in which colloid matter had been found free within the cavity of the abdomen. He believed that the disease had commenced in the mesocolic glands, from which it had spread upwards over the liver and spleen to the abdominal wall, and downwards to the omentum and ovaria; and that the general effusion of colloid into the peritoneal cavity had taken place subsequently to the rupture of the ovarian cyst from the blow the patient had received upon the abdomen. These opinions were supported by considerations deduced from the appearances after death, and from the clinical history of the case. Admitting the insufficiency of the grounds on which M. Cruveilhier maintained the malignant nature of all encysted ovarian disease, the author nevertheless suggested that the opposite view of their nature would be found no less fallacious, holding that some forms at least deserved to be classed amongst cancerous growths, and alluding to the discovery of cancer cells in his own case, and in one which is reported as having occurred in the practice of Mr. F. Bird. He regarded the present case as establishing the possible existence of three forms of colloid cancer:—1st, the ordinary locular form; 2d, the encysted (so named by Cruveilhier); and 3d, a free or unincluded form. He stated his belief that, in this instance, the plasma in which the free colloid was formed was only thrown out from such parts of the peritoneal surface as were in a state of disease. The paper concluded by calling the attention of the Society to two of the signs presented on physical examination of the abdomen; one was the perfection of the fluctuation, and the other was the unusual condition of the umbilicus, which the author suggested might assist in the formation of a more accurate diagnosis, should a similar case ever again occur.—*Proc. R. Med.-Chirurg. Soc.* in *Lond. Med. Gazette,* March 1847.

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15. *Pathological Nature of Bright's Disease.*—Dr. W. T. Gairdner, in a paper read before the Medico-Chirurgical Society of Edinburgh, April 19th, maintained that the symptoms usually considered as indicating Bright's disease, are not found

in connection with one pathological lesion exclusively, but may be the result of several disorganizing processes. The author described the pathological lesions of the kidney as being essentially the same as those of other organs, the differences being the result of the anatomical disposition of the gland. The deposition of fatty granules might occur in connection either with acute or chronic forms of disease. Instances of its acute deposition are to be found in pneumonia, and other parenchymatous inflammations, where the so called exudation corpuscles have exactly the same mode of origin from the epithelium of the lung, as the fatty cells in the parenchyma of the kidney. Neither could the granular or fatty exudation be considered as the proximate cause of albuminuria or dropsy; as it might occur to a considerable extent without either of these consequences. Albuminuria was generally connected with imperfect formation of the secreting cells, and very frequently with desquamation, as described by Dr. Johnson, Mr. Simon, and others. Dr. Gairdner pointed out the analogy of this morbid process with the ordinary phenomena of mucous inflammations, as described by Henle. This he was disposed to consider as the initiatory process of Bright's disease; it might be succeeded by exudation, or by other pathological lesions, according to circumstances. The granulated kidney, the non-granulated (fatty) kidney, and a peculiar waxy degeneration, corresponding with the "marbled" kidney of Rayer, were described by the author as frequent in connection with Bright's disease. The result of most of these forms of disease was atrophy and contraction, which occurred by the absorption of the exudation, and collapse and obliteration of the tubes.

Dr. Hughes Bennett stated, that he had on several occasions examined the demonstrations of Dr. Gairdner, and could vouch for the accuracy of the facts he had described. Some of those, more especially such as were explanatory of the changes occurring in the tubes after the evacuation of their fatty contents, were new, and constituted a valuable contribution to our knowledge of the morbid anatomy and pathology of renal disease. The observations of Dr. Gairdner, as well as those of several German pathologists, and of Dr. Johnson of London, as regards fatty degeneration of the organ, were illustrative of a series of changes which occurred in numerous glands, and exhibited the great importance of paying attention to accumulation of the fatty element as a cause of disease. There could be little doubt that exudation into the tubes was one of the primary changes in the kidney, whereby, as the author had explained, secondary effects were produced on the Malpighian bodies and the capillaries. It was in recent cases, more especially such as occurred during or subsequent to scarlatina, that fibrinous moulds of the tubes were most frequently found in the urine, which could only be regarded as the natural excretion of the morbid product. They were analogous to the fibrinous moulds of the bronchi, expectorated in pneumonia. Dr. Bennett considered that the good effects of diuretics in certain cases of kidney disease, might be explained by the increased secretion of fluid favouring the expulsion of these moulds. In other cases, again (which further observations could only more particularly indicate), diaphoretics were of great service, owing apparently to the well-known sympathetic connection existing between the skin and all mucous membranes, but especially those of the kidney.

Professor Simpson stated, that he was much interested in this subject from the frequency of albuminuria in pregnant cases. Disease of the kidney led to the absorption of urea, and a train of nervous symptoms of the utmost importance. He related several interesting cases of these, and especially one in which the urine remained albuminous for four months, and, after everything had failed, was cured by diaphoretics. The discovery of the fatty nature of the disease was very important, and its frequent occurrence in cases of pregnancy might be explained by the circumstance, that milk was often secreted and circulated in the blood long before parturition.

Dr. Paterson asked, whether the albumen found in the urine was secreted in the tubes, or was poured out from the blood, and how the hematuria, which was so common a symptom in Bright's disease, was occasioned?

Dr. Gairdner said, in reference to the remark of Dr. Bennett, that he had thought it right to be very cautious in drawing therapeutical inferences from a pathology which was still in its infancy. It had been attempted by some writers on this subject, to deter the profession from the use of diuretics in the desquamative forms of the lesion; whereas these remedies were undoubtedly found useful in some cases, in which he believed their action was precisely similar to that of expectorants in catarrh and bronchitis. He had seen comparatively few cases of the temporary albuminuria described by Dr. Simpson, owing to his observations having been made in hospital practice. He considered the albuminuria undoubtedly a morbid secretion, and thought that the hematuria was generally seen where there was little of the fatty exudation.—*Monthly Journal and Retrospect of Medical Sciences*, May, 1848.

16. *On Certain Pathological Conditions of the Blood and Urine in Gout, Rheumatism, and Bright's Disease.* By Alfred B. Garrod, M. D. The object of the author's researches is to prove that—

1st. In gout the blood always contains uric acid, and that this body can be crystallized from that fluid in the form of urate of soda.

2d. That the uric acid is diminished or absent in the urine immediately preceding the gouty paroxysm.

3d. That in patients subject to chronic gout with tophaceous deposits, the uric acid is always present in the blood, and deficient in the urine, both absolutely and relatively to the other organic matters, and that the chalk-like deposits appear to depend on an action in and around the joints, &c., vicarious to the "uric acid secreting function" of the kidneys.

4th. That the blood in gout sometimes yields a small amount of urea (no albumen being present in the urine).

Quantitative analyses and observations in favour of these conclusions were then detailed, and also the method used for separating the uric acid and urate of soda from the blood. Dr. Garrod thought it probable that the presence of a small amount of urea in gouty blood might be the cause of one of the symptoms which distinguished gouty from rheumatic inflammation—viz., the slightly œdematous condition of the inflamed part.

The author next spoke of some experiments made on the blood of the sheep, and of birds. Sheep's blood was not found to contain uric acid, and even from the blood of the pigeon, whose urine consists entirely of that substance, none could be obtained. Human blood, from patients in tolerable health, was always found to yield a trace of uric acid, but a quantity exceedingly minute compared with the amount in gouty blood.

The next researches were made on patients suffering from acute rheumatism, and it was found that rheumatic blood contains no more uric acid than the healthy fluid, and no urea can be extracted from it. Analysis made on the blood and urine in Bright's disease appeared to show that in albuminuria, 1, the blood always contains uric acid, but that the amount of this substance is subject to great variation; 2, that urea exists in large quantities in the blood, (which has been proved long since.) and that there appears to be no relation between the amount of the urea and uric acid; 3, that the kidneys are always deficient in their power of throwing off urea, but that, with regard to the uric acid, their excreting function is sometimes much injured, at other times little affected.

In conclusion, the author thought that the results detailed in the communication led to the inference, that uric acid is not a product of the action of the kidneys, (as has been often supposed,) but that it is merely excreted from the system by these organs; also that the excreting function of the kidneys, for the solid portion of the urine, is not simple, but that the urea and uric acid are separately eliminated, and that one of these functions may be impaired or destroyed, the other remaining entire; it appears, also, probable that, as in albuminuria, the "urea excreting function being chiefly impaired, we find a vicarious discharge of this body in the dropsical effusions;" so in gout the "uric acid excreting function" being defective, the tophaceous deposits are produced by a similar vicarious discharge of urate of soda. Gout would thus appear to depend on a loss of power, temporary or permanent, of the "uric acid excreting function" of the kidney; the premonitory symptoms, and those also which constitute the paroxysm, arising from an excess of the acid in the blood, and the effort to expel this "materies morbi" from the system; an undue formation of this compound favouring the occurrence of the disease; hence the connection between gout and uric acid calculous disease, and the influence of high living, want of exercise, &c., in inducing it. Thus also the hereditary nature of gout, and its frequent occurrence in low states of the system can be explained—facts which are generally regarded as militating against the humoral pathology of the affection. The above researches appear also to remove acute rheumatism from gout, and to render it probable that they are only analogous in affecting similar structures.

Dr. Ure stated that Berthollet had found the uric acid to become diminished in the urine previous to a gouty paroxysm: that some French chemist had found a considerable amount of phosphate of lime in some tophaceous deposits; and that he had noticed their crystalline composition.

Dr. Williams expressed his gratification at the highly interesting and satisfactory results of Dr. Garrod's researches, which were the more important as establishing, on the basis of chemical demonstration, the true nature of gouty disease. It had long been a matter of high probability, that the ancient notion, that gout depends on a morbid matter in the blood, was correct; and many recent observations on the causes, symptoms, and sequels of the disease, had led to the legitimate inference, that this matter is lithic acid. This he (Dr. Williams) had learnt and taught for many years past. But the demonstrative proof,—the detection of this acid in the blood,—although often sought, had never been accomplished, and to Dr. Garrod was due the entire credit of having first achieved that desideratum. The deficiency of lithic acid in the urine in the commencement of a fit of the gout, in common with other febrile movements, had been noticed by Berzelius; and its abundant reappearance on the decline of the paroxysm had been a matter of common remark among practitioners. But Dr. Garrod's observation, that even when present in the blood, lithic acid is secreted in proportions varying from those of the other constituents of urine, was a fact interesting in a physiological as well as in a pathological point of view; although he (Dr. Williams) doubted that the explanation was such as the author suggested. He (Dr. Williams) thought that it would be taking too narrow a view of the origin of gout, to refer it to defective excretion only. Many facts had occurred to him which induced him to ascribe it also to imperfect assimilation, particularly of various proteinaceous nutriments of a low kind, (such as cheese, salted meat, and pastry,) which weak assimilative powers are unable to convert into blood, and which therefore decay into lower proximate elements. This corresponds with the experiments of Magendie, on the influence of azotized food in augmenting the animal matter in the urine; and Dr. Williams stated that he had in his own person experienced a proof in point, in finding some gouty symptoms invariably ensue after eating cheese for several days. On one other subject, Dr. Williams could not quite agree with the author,—that there is no pathological resemblance between gout and rheumatism. Practitioners generally acknowledge, that although in well-defined cases they are quite distinct, yet in others they appear to graduate into each other; and both in the copious deposits of lithic acids and its compounds, on the decline of acute rheumatism, and in the unquestionable power of colchicum and alkalies in the cure of the disease, he (Dr. Williams) found a resemblance to gout, not to be effaced by the failure to detect an augmented quantity of lithic acid in the blood. In many cases of acute rheumatism, the state of the urine plainly showed that lithic acid was excreted in abundance, and a continuance of Dr. Garrod's researches would probably discover in the blood in this disease, if not lithic acid, something akin to it, and ready to be converted into it.

Dr. G. O. Rees had observed lithic acid to be absent in the urine in some cases of Bright's disease, which fact accorded with Dr. Garrod's detection of it in the blood. The circumstance of Dr. Williams having found solid urinary secretion in the cortical part of the kidney, in no way affected Mr. Bowman's theory, that such solids were secreted in the tubular structure. Mr. Bowman, when speaking of tubular structure, meant the minute tubular arrangement for secretion which existed in the cortical part of the kidney, just where Dr. Williams said he had found the solid deposits of urine. These minute tubes were lined with epithelium, and were the continuations of the tubuli uriniferi as they approached the Malpighian bodies, and formed a considerable proportion of that part of the kidney called the cortical portion, as distinguished from the tubular, in rough anatomy. He (Dr.

Rees) wished to ask Dr. Garrod in what cases of Bright's disease he had found the uric acid in the greatest amount.

Dr. Garrod, in answer to the question of Dr. Rees, as to the cases of Bright's disease, or albuminuria, in which the largest quantity of uric acid had been found in the blood, could state, that as far as his experience went, it appeared that the amount was greatest in cases of the acute disease, as those which arise after scarlatina or exposure to intense cold, the kidneys being in a state of congestion. He had also found it in large quantity in the last stages of the chronic affection, where the kidneys had almost lost their power of excreting at all. In the early stage of the last disease, he had often found that the "uric acid excreting" function of the kidney was but little impaired. With regard to Dr. Williams' observations as to the relation existing between gout and rheumatism, he wished it to be understood that his analyses had been made on cases of the acute disease, as he considered that if any "materies morbi;" existed in the blood, it would be found in greatest abundance in such cases, and in these he had failed in detecting any such excess of uric acid. Hence, if the presence of uric acid in excess in the blood constituted its pathological condition in gout, then it would appear that the relation between the two diseases was not so close as had been considered by many. Dr. Garrod did not at all deny the existence of a "materies morbi;" he only stated that it could not be uric acid. He also wished it to be understood, that he did not consider the gouty paroxysm as depending altogether on the deficient excreting power of the kidney, for no doubt the increased formation of the morbid matter favoured greatly the disease; perhaps, also, other matters generated in the stomach might, for a time, impede the excreting power of the kidney for uric acid; and hence the influence of sour beer, certain wines, and articles of diet, as cheese, &c., in inducing an attack.—*Proceed. of R. Med. Chirurg. Soc.*, in *Lond. Med. Gaz.*, Feb. 1848.

17. *On Albuminuria independent of Renal Disease.* By Dr. **Finger** of Prague.—Among about 600 medical cases of various kinds in the general hospital at Prague, the urine was found to contain albumen in 155. Among these were—

		Albuminuria in
Tuberculosis,	186 cases.	46
Typhus,	88 "	29
Puerperal Fever,	46 "	32
Carcinoma,	14 "	6
Chlorosis,	6 "	2
Acute Rheumatism,	18 "	0
Ague,	10 "	1
Pneumonia,	33 "	15
Pleurisy,	14 "	2
Peritonitis,	6 "	2
Chronic Catarrh,	16 "	3
Diarrhœa,	65 "	8
Disease of Heart,	18 "	7
Epilepsy,	2 "	2

The remaining cases were 3 of chorea, 6 of paralysis, 2 of tetanus, and 3 of hysteria; in these no albumen was found.

Of the 46 cases of tuberculosis with albuminous urine, 35 died; in 19 of these there had been œdema of the lower extremities, leading to a suspicion of granular disease of the kidney, which was nevertheless found to exist in 2 cases only.

Of the 29 cases of typhus, 17 died; disease of the intestinal glands was present in all, combined in 2 cases with pneumonia; the kidneys were sound in all the cases. The albumen appeared in the urine generally from the 16th to the 25th day, while the disease was on the increase or at the height; in those which recovered, it uniformly declined and disappeared during the convalescence.

The large proportion of cases in which puerperal fever was accompanied by albuminous urine, is explained by the admixture of the urinary and lochial discharges; in 6 cases, however, which were fatal from peritonitis, and in which the kidneys were sound, the albumen continued to present itself in the urine after the disappearance of the lochia.

In 4 of the 6 cases of cancer, the albumen was evidently from the admixture of uterine discharges. The kidneys were sound in all.

In 9 of the cases of pneumonia, the albumen disappeared from the urine during convalescence. In 6, which died, the kidneys appeared sound.

Dr. Finger is disposed to conclude that, in cases like the greater part of the above, where albumen appears in the urine along with a fibrinous or purulent exudation into some organ of the body, it is in consequence of these exudations being re-absorbed into the blood, and evacuated as effete matter by the kidneys. In support of this view, he gives three cases where albumen appeared in the urine simultaneously with the formation of abscesses in different parts of the body; and in two of which it was observed to disappear rapidly on the abscess being opened and the pus evacuated.

Dr. Finger speaks strongly of the necessity of caution in the diagnosis of diseased kidneys from the presence of albuminous urine, where the evidence derived from the history of the patient is from any cause not conclusive. He narrates two very interesting cases of patients admitted to the hospital, with all the usual symptoms of cerebral disorder from retained urea, in whom there was also a large quantity of albumen in the urine; and which, nevertheless, after death presented no appearance of granular kidney. In one there was slight puerperal peritonitis, and inflammation of the brain and its membranes, with two abscesses in the right hemisphere; in the other there were inflammation and purulent deposition in the urinary passages, with obstruction of one ureter and impediment to the function of the corresponding kidney, which was very much distended. In both these cases the diagnosis of Bright's disease, which was the one arrived at, was unavoidable, from the absence of any history of the patients' illness, and the state of insensibility on admission.

In the two cases of epilepsy in which albuminuria was discovered, the albumen presented itself only after a convulsion, diminishing, and gradually disappearing, after the lapse of thirty-six hours. This observation is important in connection with the cases recorded by Lever and others, of the concurrence of albuminuria with puerperal convulsions.—*Präger Vierteljahrschrift*, 1847, No. IV.

[We consider Dr. Finger's observations as an important contribution to the pathology of albuminuria; at the same time, we cannot view his results as by any means clearly or definitely established. We are sure that no modern pathologist who has given any attention to the minute examination of the kidney, would be content to assume the soundness of that organ from the absence of the ordinary appearances of granular disease. Moreover, if Dr. Finger's explanation of the albuminuria occurring during acute diseases be correct, how comes it that the albumen is present in the urine during the *inflammation*, when the fibrinous exudation is at the same moment thrown out elsewhere; and absent during the *resolution*, at the very time when that exudation is re-absorbed into the current of the circulation. Further, we know, from the observations of Schönlein and others, that the effete fibrine of inflammatory exudation is generally converted, in passing off by the kidneys, into lithate of ammonia, which is deposited as a sediment soluble by heat; and, if this be established as the usual process, surely the secretion of unaltered albuminous matter by the kidneys, must be the result of some disturbance of their function. On the whole, we think it most probable, from the evidence before us, that the secretion of albumen by the kidneys, is generally the result either of functional alteration or of organic disease of the organ itself; and the researches of Dr. Finger are valuable and important, as tending to show the circumstances under which this must readily occur as a temporary exudation, thereby presenting hints for present use in a diagnostic, and for future inquiry in a pathological, point of view.]—*Monthly Journ. and Retrosp.*, April 1848.

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18. *On Ozone as a Cause of Disease.* By Prof. Schönbein.—The experiments made by Prof. Schönbein some years since, tended to show, that when a current of ordinary electricity passes from pointed bodies into the air, a substance is produced similar to that which becomes apparent, together with oxygen, at the positive electrode on the decomposition of water by a voltaic pile, or by the action of phosphorus on moist air. To this substance the term *ozone* has been applied, as expressive of its powerful odour. The subsequent experiments of the same dis-

tinguished chemist have further shown, that this remarkable substance is not only an eminently oxidizing agent, but that when inhaled, even if blended with a large quantity of air, it produces effects similar to those occasioned by chlorine and bromine; irritating the mucous membrane of the respiratory canals, and inducing acute catarrhal affections. As electricity is continually being evolved in the atmosphere, ozone must likewise be constantly produced in quantities which are probably proportionate to the intensity of the electrical discharges. As ozone at an ordinary temperature decomposes iodide of potassium by the separation of the iodine, it is evident that this iodide may, when mixed with a solution of starch, be used (if free from iodate of potash), for the purpose of detecting the presence of an infinitely small quantity of ozone in the atmosphere; since neither ordinary oxygen, nitrogen, nor a mixture of atmospheric air and carbonic acid, produces the same effect on iodide of potassium. This iodide paste will of course be coloured blue, with an intensity proportionate to the quantity of ozone present in the atmosphere. Professor Schönbein has found that the period in which the iodide paste turns blue in the open air varies extremely at different times; being occasionally coloured more intensely in a few hours, than at another period in the course of several days. On an average, this blue coloration is effected most rapidly in the colder seasons of the year; there are some days, however, during summer, in which the paste is very rapidly coloured, and this is especially the case in thunder-storms. Experience has shown that ozone is more rapidly produced by ordinary and voltaic electricity in proportion to the low degree of the temperature. It is a well-known fact, that in winter catarrhal affections of the mucous membrane of the respiratory organs frequently occur with such prevalence as to assume the character of an epidemic. Now if it were shown, that at certain periods, characterized by a general prevalence of catarrhal affections, large quantities of chlorine or bromine were present in the atmosphere, no one would hesitate to ascribe the cause of these diseases to the above substances. But it is an established fact, that by the inhalation of proportionally small quantities of ozone, physiological effects are produced similar to those which are occasioned by the inhalation of air charged with chlorine or bromine. This led Schönbein many years ago to conjecture that many catarrhal affections might be owing to the presence of ozone in the atmosphere. In the course of last winter, several catarrhal epidemics occurred in Bâsle, so that very few persons escaped; and Schönbein and many physicians of that town, instituted a series of daily observations, with the view of ascertaining how far the rapidity and intensity of the blue coloration of the iodide paste were connected with the prevalence and intensity of the catarrhal symptoms: the results were conclusive as to the simultaneity of the maximum of the coloration with extremest intensity of the epidemic. Further and more exact observations are, however, necessary for the establishment of this fact; and as an investigation of this nature may be so easily effected, we would call attention to the subject, which would be much elucidated by thermometrical and barometrical experiments (A simple method of making the observation, is by mixing pulverized iodide of potassium with a solution of starch, and exposing to the open air a strip of paper that has been rubbed over with the mixture.) As ozone is immediately decomposed by sulphuretted hydrogen and sulphurous acid, it would not be wholly devoid of interest to determine, whether persons living in the neighbourhood of sulphur-springs, or workmen engaged in metallurgic operations in which sulphurous acid is liberated, are less liable to catarrhal affections than those living in a purer atmosphere. In conclusion, we would remark that two hypotheses prevail with reference to the nature of ozone. According to Delarive and Berzelius, ozone is an allotropic modification of oxygen, occasioned either by electricity or by the catalytic activity of certain substances, (as for instance phosphorus;) whilst Prof. Schönbein regards it as a higher stage of the oxidation of hydrogen, the combination of which is effected either by an electric or a catalytic influence.—*British and Foreign Medico-Chirurg. Review*, April 1848, from *Henle u. Pfeufer's Zeitschrift für rationelle Medizin*, Bd. vi. Heft 2.

19. *Therapeutic Action of Cod Liver Oil.* By Dr. Hughes Bennett.—Dr. Bennett believes that the therapeutic action of the oil is dependent essentially on its being a fatty matter, perhaps more easily assimilated to the economy than any other

kind of fat. He thinks the views of Ascherson fundamentally correct, with this difference, that instead of oil and albumen uniting to form elementary cells, they only produce elementary molecules and granules, from which nuclei and cells are formed. To him it seems certain, that in chronic rheumatism and tubercular diseases, the albuminous compounds are in excess, and the oily compounds are diminished in the economy. The direct addition of the latter, therefore, is the most rational method of supplying the wants of the system.

It may reasonably be argued, that if the theory of its action as fatty matter be correct, any other kind of oil would prove just as serviceable, and certainly there are many much more agreeable to the palate. Experience, however, has decided this question in the negative. The reason of this probably is, that continued doses of the purest vegetable oils, as that of the olive and almond, are more or less purgative, and thereby diminish, instead of improving, the strength. It may also happen that the pungent properties of cod liver oil may have a favourable influence in retaining it on the stomach, and rendering it digestible. Lastly, it seems reasonable that an animal oil should be much more easily assimilated to the system than a vegetable one.

Since the publication of Dr. Bennett's work on cod liver oil, in 1841, the chemical views of Liebig and others have come into notice, and it is a remarkable fact that they perfectly harmonize with the histological and morphological theory therein advanced. For, whether we regard the oil as a carbonized principle of the food, as furnishing an element for respiration, or as necessary to the formation of elementary granules in a nutritive blastema, it seems equally fitted to serve the end in view.

That a purely chemical theory, however, is defective, is proved by the fact that *every* carbonized material is not fit for the purpose. We cannot produce an increased nutrition in rheumatic or phthisical constitutions by alcohol, sugar or starch, notwithstanding their chemical composition is so similar. The chemists may argue that these are converted into fats; and in the physiological condition so they are. In a pathological condition, however, when the digestive powers are enfeebled, this does not take place; and, in giving an animal oil ready made, we save the elementary organs the trouble, as it were, of doing this. Hence, in constitutions which cannot digest food, or convert it into the oily element, the introduction of cod liver oil, in large doses, causes the necessary principle easily to be imbibed into the lacteals, where, uniting with the albumen, it constitutes the elementary granules so necessary to nutrition.

It is on this account, that in every disease of a rheumatic or tubercular nature, attended with impairment of nutrition, emaciation, weakness, &c., cod liver oil is directly indicated. It operates by imparting to the system one of the great elements necessary for the nutrition of the animal economy, in cases where that element is essentially defective. In the hands of the rational practitioner, it is destined to be an important means of curing a class of diseases, hitherto considered of the most dangerous and fatal nature. As our knowledge of morbid processes improves, as the microscope and organic chemistry open up to us the primary alterations producing lesions of the body, the great importance of attending to the part played by the oily principle, as one of the essential elements of nutrition, will become apparent. Then, when pathology is made the companion of physiology, and both constitute the foundation for a rational system of therapeutics, the use of cod liver oil will be found as beautiful in theory as it has already been found beneficial in practice.—*Monthly Journal and Retrosp.*, May 1848, from *Bennett on Cod Liver Oil*, Edin., 1848, 8vo.

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20. *Quinine in Intermittent Fever.*—M. BOUCHARDAT conceives that intermittent fevers may be usefully arranged under four forms or varieties, according to the intensity of the disease, and the corresponding effect of quinine on its course and duration. The *first form* includes those obstinate cases which require large doses (15 to 30 grains) of quinine for their temporary cure, but in which, in spite of the methodical use of the remedy, the fever continues to recur for years. This variety is found in Italy, North of Africa, &c., and is contracted, according to Bouchardat, by a lengthened residence in the neighbourhood of marshes, the water of which contains sulpho-salts in solution. To the *second form* belong those cases which

require, but may be effectually cured by large doses (15 to 25 grains) of quinine. An intermittent of this kind prevails at Tours, and has been well described by M. Bretonneau, who observes that small doses are here insufficient. They habituate the patient to the action of quinine, irritate the stomach, and render it difficult to obtain the full action of large doses. The *third form* comprises those mild cases in which small doses (1 to 5 grains) are sufficient, not only to arrest the fever, but also to prevent its return. Lastly, he includes in a *fourth form*, the numerous cases in which change of residence, or admission into hospital, is sufficient to remove the disease.—*Gazette Médicale de Paris*, Jan. 1848.

[This classification of intermittents is certainly of considerable practical value, and serves to establish the principle, that the dissimilarity of action of the same remedy may indicate differences in diseases apparently identical occurring in distant parts of the globe. The cases of intermittent fever observed in Paris and Vienna, belong to the third and fourth forms of M. Bouchardat. Thus, the practice of Skoda of Vienna, which consists in giving three doses of quinine of two grains each, at intervals of one hour previous to the usual period of accession of the paroxysm, rarely fails to effect a cure in two or three days. On the second or third day he sometimes increases the third dose to four or six grains. The form of intermittent is, however, so mild, that we have repeatedly seen cases in other wards of the same hospital recover without any treatment whatever. On the other hand, the experience of physicians in Italy, Africa, and some parts of North America, has shown that small doses of quinine are quite inefficient in the treatment of the intermittent fever prevalent in these parts of the world.]—*Monthly Journ.*, May 1848.

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21. *Double Pneumonia,—Hepatization of the Posterior Portions of the Lower and Middle Lobes of both Lungs,—Recovery.* By W. H. Ranking, M. D.—A young genman, aged 17, of delicate frame, subject in infancy and childhood to repeated attacks of inflammatory croup, after exposure to cold was attacked March 22d with symptoms which were considered to indicate a common "bilious attack." It appears that he had some cough from the first, but this symptom was not so severe as to cause any anxiety on the part of his medical attendant until the 27th, when a sudden aggravation of the pulmonary symptoms induced him to seek my co-operation.

When seen by me on the morning of the 28th, the patient was in the following condition:—Decubitus on the back, raised by pillows; countenance sunken, pale, and anxious; alæ nasi in rapid motion; whole surface bathed in perspiration; respiration 60 in the minute, abrupt and superficial; pulse 130 to 140, feeble; cough slight; expectoration scanty, tenacious, and rusty. On raising him into a sitting posture, it was found that all the axillary muscles of respiration were in full play, and it was evident from the short and rapid breathing that a small portion only of the lungs was pervious to air.

Physical signs.—Dullness on percussion of the posterior portions of both lungs, extending from an inch above the angles of the scapula on the left side, and about half an inch on the right; above these points, and over the anterior regions of the chest, the stroke-sound was normal, or nearly so; over the entire space indicated by dullness on percussion, the vesicular murmur was extinct, and in its place loud bronchial or tubular breathing was heard, the expiratory "whiff" being peculiarly well marked. These signs were developed in their greatest intensity on the left side. In the upper lobes, posteriorly and in front, the respiration was puerile, but no crepitus could be discovered by the most attentive examination. The lower ribs behind were motionless.

The above combination of physical signs, pointing out distinctly the existence of double pneumonia in the stage of hepatization, treatment to the best of my judgment, suitable to the emergency, was at once adopted. Six leeches were ordered between the angles of the scapulæ as the only depletory measure admissible, and these were to be followed by a blister. The subjoined pill was also exhibited every two hours:—

℞.—Hydr. chlorid. gr. ij; ant. potass. tart. gr. ⅛; pulv. opii gr. ¼. Fiat Pilula. And eight grains of sesqui-carbonate of ammonia were given every four hours, in decoct. senekæ. Beef tea *ad libitum.*

29th. The leeches had bled well and the patient expressed himself as relieved at first by them, but at the time of our visit he was apparently all but asphyxiated by the sudden accumulation of bronchial secretions, which he was unable to expectorate. Suffocation appearing imminent from this cause, he was raised into the semi-erect posture, and brandy and water administered several times during the day.

30th. Has expectorated a considerable quantity of frothy phlegm, under the stimulus of the brandy, and the immediate danger of suffocation has passed. The mucous rhonchi have also subsided as suddenly as they appeared.

For the next two days there was no very obvious change, but it was evident that the patient did not lose ground, a matter, under the circumstances, sufficiently encouraging. Pergat.

April 2d. General aspect improved; respiration sank to 40, and the pulse to 100; skin cool; tubular breathing less distinct, and vesicular breathing beginning to appear, especially on the right side. *No "crepitus redux" heard,* though carefully listened for. As the bowels had been several times purged, and the motions were green, the calomel was replaced by mercurial dressing to the blister, and he had mist. creta.

4th. Expresses himself as considerably better; scarcely any cough, and expectoration scanty, but less tenacious, containing a small quantity of pus, and occasionally streaked with blood; gums becoming tender;. purging suspended. Both lungs "clearing up;" tubular respiration almost gone on the right side; *still no crepitus.*

5th. Mercurial fetor well pronounced. The blister to be dressed less frequently. Ordered pulv. ipecac. gr. j; extr. conii gr. iv in pill, every six hours. To continue the mixture.

7th. Pulse 90; respiratory murmur heard fully to the base of the right lung; the left less permeable to air.

12th. Has continued steadily to improve; there has been but little cough or expectoration, but the respirations and pulse have gradually come down to the natural standard. Sits up and takes food with appetite. On examination of the chest, the left side is observed to be flatter than the right, and measures less by nearly an inch; it has a less extent of motion in breathing, but air may be heard to penetrate to the base, by causing the patient to take forced inspirations. Ordered potass. iodidi scr. j; vin. ferri oz. j; infus. gent. oz. vj. Sumat cochl. magn. ter in die.

From this period no regular reports have been taken, but occasional examination has satisfied me that the left lung is gradually recovering itself, and the side expanding in proportion. He has now returned to his usual food and habits.

Remarks.—The above case offers instructive evidence of what energetic medical treatment is able to accomplish, under apparently the most hopeless circumstances, and affords as triumphant an answer as could well be wished to those who would depreciate the efficacy of medicine, in order to magnify the restorative powers of unassisted nature. At the time of my first seeing the patient his vital energies were so much sunk, and the extent of lung rendered useless for the purposes of respiration so great, that I did not entertain the smallest hope of saving him, but, on the contrary, his death appeared all but inevitable—certain, if he remained many hours longer unrelieved. Pneumonia advanced to the stage of hepatization, and occupying a large portion of even *one* lung, is a disease of very considerable danger, and medical efforts are often baffled, although the patient possesses one sound lung for the maintenance of respiration. Here the major portion of both organs was rendered impermeable by air, and recovery must be looked upon as a rare, a fortunate event. Andral states that he has never known a patient recover from pneumonia, whose respirations reached fifty in the minute. In the present instance this number was exceeded, and they remained as high as forty for a space of two days.

Two points especially worthy of notice, are the trifling amount of cough and expectoration, and the restoration of the lungs, without the reappearance of the "crepitous rale." It is the not uncommon absence or trifling amount of cough, which causes pneumonia to be so often overlooked in its early stage by those who are not conversant with the practice of auscultation. An instance has occurred to me within the past year of one lung becoming almost universally solidified from pneumonia, which the medical attendant, an elderly practitioner, quite unacquainted with auscultation, and occupied by a co-existing jaundice, had entirely failed to recognize; nor could I convince him of the fact, *because there had been but little pain and cough* in the earlier period of the attack. I saved this lady's life by at once commencing a vigorous mercurial treatment, but to this day I have reason to know the gentleman in question considers that the solidified lung was the offspring of my imagination.

The second point to be noticed, (the restoration of the hepatized lung without the reproduction of "crepitus,") is one of particular interest. From the time of Laennec till now it has been known, that when a portion of lung which has been solidified by inflammation begins to be restored, the crepitous rale which had disappeared as bronchial breathing becomes developed, again re-appears as the "crepitus redux." That this is the ordinary course of events is beyond dispute, and is alluded to by Watson, Williams, and, in fact, by every recent writer and lecturer on diseases of the chest. It may, therefore, be readily imagined, that I was not a little surprised to find that, though there was indisputable proof of amendment in the condition of the lungs of our patient, I yet could not on the most minute and repeated examination discover any "crepitus redux." The character of the breath-sound passed at once from the bronchial to the vesicular, the latter gradually gaining upon, and eventually displacing the latter. I could not at the time account for this, and was content to note it down as a *fact*, that "crepitus redux" is not an invariable accompaniment of the resolution of pneumonia; when, upon turning to that admirable example of bed side teaching, Graves' "Clinical Medicine," I found the same fact had been observed by its author, and under precisely the same circumstances as were offered in the present case—viz., recovery, with trifling cough, and little or no expectoration. Dr. Graves remarks, that in ordinary cases resolution of pneumonia takes place by increased secretion, together with interstitial absorption, but the latter alone is sufficient in certain instances. When such is the case, and no secretion takes place into the bronchial ramifications, there can be no "crepitus redux."

This case offers still another feature of interest, in the sudden occurrence of imminent suffocation from effusion into the larger bronchial tubes on the 29th. This effusion was evidently asthenic, resembling that which occurs towards the close of many other diseases. It might not have been of so much importance under some conditions of disease, but here it was a most formidable complication, obstructing what little portion of pulmonary tissue had been spared by the original malady. It was promptly met by the free exhibition of brandy, a few doses of which enabled the patient to discharge a quantity of frothy mucus. The urgent debility being thus obviated, the symptoms did not reappear.

The treatment was conducted on general principles. Depletion to any extent was inadmissible, and it is questionable if free blood-letting is of use after hepatization has taken place, even if the patient's strength would tolerate it. All that is necessary in this stage, is by removing a small quantity of blood, to induce something like a balance between the bulk of the circulating fluid, and the diminished capacity of the lungs. I regretted even the application of a few leeches, in the present instance, and am not sure that they were not the cause of the sudden bronchial effusion above mentioned. It will be seen that mercury was looked to as the sheet anchor. Such I regard it to be in the stage of hepatization. The time is then gone by when good is to be expected from the use of large doses of antimony. The air-cells are clogged by fibrinous deposit; and the best absorbent of lymph, whether in the pulmonary tissue or between the layers of the cornea, is mercury. The iodide of potassium also did good service in completing the resolution of the obstructed lung.—*Provincial Medical and Surgical Journal*, May 17, 1848.

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22. *On the Nature, Cause, and Prevention of Scurvy.* By A. B. Garrod, M. D., (*Monthly Journal of Medical Science*, Jan. 1848.) It appears from the various accounts that we have of scurvy, that although impure air, cold, moisture, age, and condition of habit, may favour the occurrence of scurvy, yet none of them, Dr. Garrod conceives, can be regarded as the real cause which must be sought for in

the nature of the food. The causes of the disease, he says, are thus reduced to one of the two following, viz:—

1st. To the absence or deficiency of some *organic* substance in the food.

2d. To the absence or deficiency of some *inorganic* constituent.

Finding that all the theories of scurvy hitherto advanced were imperfect, Dr. G. was led to examine more minutely the composition of food under the use of which scurvy was capable of occurring, and also of such substances as had been proved beyond doubt to be anti-scorbutic, and afterwards to seek for the absence or deficiency of certain normal substances in the blood; and from such examinations he was led to the following conclusions:—

1st. That in all scorbutic diets, *potash* exists in much smaller quantities than in those which are capable of maintaining health.

2d. That all substances proved to act as anti-scorbutics contain a large amount of *potash*.

3d. That in scurvy the blood is deficient in *potash*, and the amount of that substance thrown out by the kidneys less than that which occurs in health.

4th. That scorbutic patients will recover when *potash* is added to their food, the other constituents remaining as before, both in quantity and quality, and without the use of succulent vegetables or milk.

5th. That the theory which ascribes the cause of scurvy to a deficiency of *potash* in the food, is also capable of rationally explaining many symptoms of that disease.

Dr. Garrod gives the following table showing the amount of potash contained in several articles of diet.

	Grains.
1 oz. of Baker's Best Bread (City), - - - - -	0·259
1 oz. of Best Bread (West End), - - - - - -	0·257
1 oz. of Home-made Bread, probably containing potato flour, - -	0·262
1 oz. of Best White Flour, - - - - - -	0·100
1 oz. of Bran, - - - - - - - -	0·609
1 oz. of Rice, - - - - - - - -	0·005
1 oz. of Rice, - - - - - - - -	0·011
1 oz. of Oatmeal, - - - - - - - -	0·054
1 oz. of Split Peas, - - - - - - -	0·529
1 oz. of Raw Beef, - - - - - - -	0·599
1 oz. of Salt Beef, raw, - - - - - - -	0·394
1 oz. of Salt Beef boiled (slightly salted), - - - -	0·572
1 oz. of Boiled Mutton, - - - - - - -	0·637
1 oz. of Dutch Cheese, - - - - - - -	0·230
1 oz. of Boiled Potato of large size, - - - - -	1·875
1 oz. of Raw Potato (small), - - - - - -	1·310
1 oz. of Boiled Potato, without peel and well done, water containing much potash, - - - - - - - -	0·529
1 oz. of Onion (small), - - - - - - -	0·333
1 fluid oz. of London Milk, - - - - - -	0·309
1 oz. of Orange (not ripe) including septa, - - - -	0·675
1 fluid oz. of Lime Juice, - - - - - - -	0·852
1 fluid oz. of Lemon Juice, - - - - - -	0·846

1st. *Potash is deficient in scorbutic diets.*—Dr. G. shows that this is the case, by an examination of the dietaries of some workhouses and prisons, the inmates of which have become scorbutic.

"In the diet of sailors," he observes, "we find abundance of meat (salted beef and pork); but no doubt the quality of these provisions is often much impaired by the prolonged action of the salt, causing the gradual exosmosis of the potash salts, and the substitution of those of soda. In an analysis of beef which has been exposed for only a few days to the action of brine, but where the thickness of muscle was not more than 1½ inch, there was found to be a considerable diminution of the potash. One ounce of fresh beef gave 0·599 grains of potash, one ounce of salted beef 0·394 grains; and there can be little doubt but that a prolonged action of the brine would reduce very greatly the amount of potash salts in the largest joints. So that the sailor's weekly dietary, when no vegetables can be procured, consisting of 9¾ lbs. of salted meat, about 7 lbs. of flour in the form of biscuits, and 1½ pints of peas, would contain about 90 grains of potash, supposing the meat such as stated above.

"2d. *That all bodies proved to be anti-scorbutic contain a large amount of potash.*—All fruits contain this substance in abundance, as oranges, lemon, limes, grapes, gooseberries, &c., and these are all highly anti-scorbutic. Potatoes also, which perhaps are the most valuable as an addition to a dietary for the purpose of preventing scurvy, and owing to the scarcity of which article this disease has been so prevalent within the last two years, contain, as the above analyses prove, a very large amount of potash, and when boiled, (not too much, and unpeeled,) still retain most of that ingredient; this also accords with the fact, that potatoes, when cooked in the ordinary way, are anti-scorbutic, and at the same time explains why the hard core of that tuber, which is so much liked by the Irishman, is most powerful in preventing the occurrence of scurvy, (see Dr. Lonsdale in August number of this Journal.) Milk, which is undoubtedly a good anti-scorbutic, and upon which the young of animals are for some time sustained, contains a very large proportion of potash salts compared with those of soda, being an exception to the relation between these two classes of salts which is found in the other animal fluids,—a pint of milk (London) and having a sp. gr. of 1·021, containing 6·180 grains. This was probably considerably diluted, as the usual sp. gr. is from 1·026 to 1·030. Berzelius's analysis gives about 9 grains; but the sp. gr. of the milk which he analyzed was much greater, about one-third. Fresh meat also contains potash in rather large proportion; and there is no doubt that animals, such as the carnivora, living entirely on this substance in its uncooked state, take an amount of potash quite sufficient for the wants of the system. When we examine other articles noted for preventing or curing the disease in question, we find that potash enters into the composition of all in considerable quantities; this is true with regard to cabbages, turnips, onions, garlics, leeks, and hence their efficacy, and also of pickles and sour-krout made from them; the same is the case with the young tops of plants, as of the Pinus sylvestris, &c., when a decoction is made. Potash is also found in spruce beer, wort, malt liquors, wines, especially the lighter description, which contain this substance in the form of a bitartrate, but which becomes deposited in the stronger varieties.

"3d. *In scurvy the blood is deficient in potash, and the amount of that substance thrown out by the kidneys is less than what takes place in health.*—A hundred grains of the dried serum of healthy blood, when incinerated and heated with the bichloride of platinum, gave 1·582 grains of the double chloride of potassium and platinum. A hundred grains of dried serum of scorbutic blood, treated in the same way, gave only 0·627 grains of the same salt; so that the amount of potash in scorbutic blood was little more than one-third that contained in the blood in health, although the total amount of saline matters was nearly equal. In one case, a female, at 50, complaining of great prostration of strength, spongy gums, effusion in both ankles, &c., the amount of urine passed was 22½ fluidounces in the twenty-four hours—sp. gr. 1·015. Reaction *very* acid, and on standing, deposited mucus intermixed with uric acid crystals. The amount of potash excreted in twenty-four hours was much less than in health, being less than 7 grains; but a slight accident prevented a very accurate determination of the quantity.

"In another case, the amount thrown out in twenty-four hours was 40 oz. Sp. gr. 1·010, and acid in its reaction.

"4th. *Scorbutic patients, when kept under a diet which gave rise to the disease, recover, when a few grains of potash are added to their food.*—In several cases which came under my care, the treatment consisted in the daily administration of a few grains (from 12 to 20) of some salt of potash mixed with syrup and water. Sometimes the bitartrate, at other times the acetate, and also the carbonate and phosphate were used. All the salts appeared to act alike, and I have little doubt but the chloride of potassium would be found equally efficacious. When the cases were thus treated, all vegetables, milk, and malt liquors were strictly prohibited; and yet the patients rapidly recovered. Other cases were treated by fresh vegetables and milk: these also recovered, but certainly not more quickly than those from whom these substances were withheld, and potash salts substituted. On looking over the works of several writers on scurvy, I have frequently found that some *potash* salt has been administered with *marked* benefit; thus, nitre has been recommended. nitre dissolved in vinegar, the bitartrate of potash, the oxalate of potassa; but the efficacy has always been ascribed to the acid contained in these substances, and no attention has been paid to the base.

"5th. *The theory which ascribes the cause of scurvy to a deficiency of potash in the system, is capable of explaining some of its symptoms.*—Both soda and potash are constant constituents of the animal body, and it appears that they are not capable of replacing each other; for example, we always find the potash to exist in large quantities in the ash of muscle, soda in very small quantities (Berzelius, Liebig); in the ash of the blood we find the relation reversed. It appears, also, that the muscular system requires the presence of potash, and we should therefore expect to find that where there is a deficient supply of this base, the effect would soon be manifested in the functions of that system. This we find to be the case in scurvy; without any amount of wasting of the body we find marked muscular debility, and this perhaps is one of the earliest symptoms of the disease."

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23. *Tubercle and Cancer.*—In the hospitals of Paris, Dr. Rognetta states (*Annales de Thérapeutique*, November 1847) the greatest mortality is owing to pulmonary tubercle and cancerous affections. Cancer is found with fearful frequency, in all its forms, in every region and in every tissue. It is an incurable disease, whether operated upon or not, and we are ignorant whether the most successful operation has ever retarded for a moment its natural termination. There is not even a general indication with respect to its treatment, and prescriptions are limited to opiates in every form, in the vain presumption that such remedies calm the pains. The disease is incomparably less frequent in the centre of Italy, but instead, there are continually found severe affections of the arterial trunk, especially spontaneous aneurisms, with general disease of the arteries, which often render operations inefficacious or insufficient.

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24. *Free Communication between the Ventricles without Cyanosis.*—Dr. Hare exhibited to the Pathological Society of London, April 17th, two cases of malformation of the heart. The subject of the first case was a child five months of age. The ventricles were hypertrophied without dilatation, and there was an aperture in the septum ventriculorum.

The subject of the second was a child fourteen months old, the ventricles were slightly dilated and not hypertrophied; the foramen ovale was imperfectly closed, and there was imperfection of the septum ventriculorum. Notwithstanding the communication between the ventricles, there was no cyanosis. We are thus furnished with two more to the numerous cases already recorded, showing that the mixture of venous and arterial blood is not the cause of cyanosis.

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25. *Erysipelas of the Hairy Scalp.* By M. Grisolle.—Erysipelas of the hairy scalp without consecutive extension to the face is so rare a disease, that M. Chomel has not seen more than three or four cases during his long practice. An example falling recently under M. Grisolle's observation, he made a few remarks upon it. In this case the disease occurred without any previous injury or wound of the scalp whatever; and it offered a good example of a characteristic of the affection pointed out long since by M. Chomel,—namely, enlargement of the cervical glands. This is not a constant though a very common symptom, and precedes the occurrence of the erysipelas by two or three days; and whenever M. Grisolle meets with it in an individual otherwise well, and suffering from no chronic affection of the head, or wound or erosion in the vicinity, he always prophesies the supervention of erysipelas of the scalp. In the present case, the earliest symptoms were a stiffness of the neck and an enlargement of these glands. These enlargements also occur in other affections, but then they do so *consecutively* only, and do not form, as in this erysipelas, a *precursory* symptom. It is of importance to attend to this, as erysipelas here manifests itself sometimes only by very obscure symptoms. Pain and œdema of the scalp are, however, usually present, and redness may be seen by close examination. Vesicles never form on the scalp,

the disease usually terminating by desquamation, which may be prolonged for several weeks. Numerous small abscesses sometimes appear at the close of the disease. When the disease is traumatic, it may take on the phlegmonous form, and the case then becomes very serious. However great the detachment of parts this may cause, gangrene of the scalp never occurs; which Dupuytren explained by the fact of the vessels passing between the aponeurosis and the skin remaining uninjured amidst the destruction of the cellular tissue. Delirium is one of the symptoms most to be feared. It is, however, only sympathetic, and not due to inflammation of the brain or its membranes; for in the autopsies made in these cases by MM. Chomel, Louis, and Grisolle, no apparent lesions beyond a vivid injection of the scalp have been discovered. M. Grisolle predicted that the erysipelas in this case would not extend to the face, in consequence of the absence of the well-defined line and the red indurated border, which are always seen in erratic erysipelas.—*B. and F. Med. Chir. Rev.*, April 1848, from *L'Union Médicale*, No. 14.

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26. *Condition of the Gums in Phthisis.*—Dr. Frederiq's attention was first called to this subject in 1844, when he observed a line of a red brick colour near the free edge of the otherwise normal gums of a phthisical patient. The line was very narrow, and ran parallel with the edge of the gums, but only opposite the incisors and canine teeth. Since that period, he has examined the gums in numerous subjects of phthisis, and has always found this red line more or less distinctly visible, although sometimes only opposite the inferior median incisors. The researches of the author do not enable him to say whether this sign manifests itself as one of the earliest symptoms of phthisis, nor to declare absolutely that it is seen in no other disease, although he has never yet met with it in such.—*Ibid.* from *L'Union Médicale*, No. 5, 1848.

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27. *Laryngitis.*—[Mr. Parr communicated to the Surgical Society of Ireland, (March 4th,) the following interesting case of Laryngitis.]

Case I.—James Anderson, ætat. 30, a delicate-looking man, carpenter by trade, admitted into the temporary fever hospital under my care, about four weeks ago, labouring under pneumonia, for which I cupped, blistered, and mercurialized him. In the course of ten or fourteen days he was convalescent, the disease having terminated by resolution. On Wednesday, the 23d of February, upon visiting this patient, I found him complaining of some difficulty of swallowing from a sore throat. Upon examining the fauces, the velum and tonsils were found inflamed. There was no difficulty of breathing. For this I applied a few leeches to the angle of the jaw, and touched the surface with solution of nitrate of silver, and freed the bowels. The following day the symptoms were not relieved; the tonsils were slightly enlarged, the right presenting one small speck of ulceration. I looked upon the case as one of cynanche tonsillaris, caused by exposure to the draught of a window which was near his bed. On the 25th I observed a slight stridor. Patient complained of increased cough and expectoration of frothy mucus during the night.

Upon passing the finger into the throat, the epiglottis was found to be soft and erect, the voice raucid, and pain caused by pressure on the thyroid cartilage; respiration laboured; pulse quick, and countenance anxious.

Concluding the patient to be labouring under laryngitis, I ordered ʒss of calomel immediately, to be followed every second hour by 2 grs. and gr. ¼ of opium and 4 oz. of wine.

Upon visiting the following morning, my hopes of success from the mercury were disappointed by finding the patient had refused to take more than two doses of the medicine from the pain occasioned by swallowing. The symptoms were not relieved, but a very slight mercurial fetor existed. It was determined, in consultation with Dr. Brady, to give the mercury a fair trial, and so the small doses were repeated. At eight P. M., no appreciable amendment was discovered; but as he stated he felt some relief, and fetor was more evident, the remedy was persevered in. About twelve that night, pytalism was fully established, dysphagia much diminished, and breathing considerably relieved. After this he fell into a sleep which lasted two or three hours, at the end of which period he awoke in a state of great exhaustion, from which he never rallied, and under which he gradually sank about five the following morning.

Twenty-eight hours after death, I examined the parts and found the mucous membrane of the fauces highly vascular, the uvula infiltrated, the epiglottis much thickened and inflamed, the rima glottidis reduced to a small slit, through which only the handle of the scalpel could be introduced. The mucous membrane of the trachea was highly vascular, presenting no trace of ulceration or adventitious membrane.

Case II.—The next case is that of a girl, five or six years of age, who suffered from an attack of the epidemic, accompanied by some slight bronchitic affection, from which she was convalescing. On the 28th of February my attention was attracted by a peculiar hard cough, having the ringing sound, so characteristic of, and described as the harbinger of croup. The little patient complained of no uneasiness, nor had she been observed to cough for some days previous. The pulse was not accelerated, nor was there any difficulty of breathing. Being fearful of an attack of croup, I ordered a solution of tartar emetic (one grain to the ounce), of which a teaspoonful was given every twenty minutes till it vomited, and then continued during the day in smaller doses. Low diet.

29th. The medicine produced its emetic effects, and no further cough occurred, but a slight hoarseness remained. The medicine to be continued in smaller doses.

About seven that evening, intense dyspnœa occurred, which threatened to carry off the patient. Four leeches were applied to the thyroid cartilage, and the tartar emetic increased. A large quantity of frothy mucus was ejected. The leeches bled freely, and greatly relieved the patient. About twelve the child was comparatively easy, but did not sleep. Towards morning, the spasm increased, and upon seeing the patient at nine A.M., the breathing was most laboured, the child gasping, the diaphragm and intercostals acting powerfully, the lips were livid, and breath cold—in fact, each gasp appeared as if it would be the last. Dr. Moss and I concluded that there was no chance of saving the life of the child but by means of operation; so as quickly as I could procure the instruments, tracheotomy was performed at eleven. No blood of any amount was lost. Upon opening the trachea, great relief was experienced, the lividity partly disappeared, and the pulse became fuller. The patient was then wrapped in warm flannel, and placed in bed by the fire, being ordered one grain of calomel every hour, with a small quantity of wine. In twenty minutes after the operation, she fell asleep, which lasted about an hour and a half, when she awoke and asked for drink; almost immediately after, she began to sink, and died in ten minutes.

From the foregoing cases, we must be particularly struck with the necessity of carefully watching all convalescents, whether from fever, pneumonia, or in fact, any disease which tends to depress the powers of life.

The occurrence of laryngeal affections is by no means rare after fever, and the treatment of such more difficult, and the applications of antiphlogistic measures more hazardous than in idiopathic affections of the like nature.

The rapidity with which this disease runs its course to a fatal termination renders it imperative that something decisive should be done, and that quickly.

Now, as to the application of the ordinary measures made use of in the treatment of this disease (occurring as a primary affection), the first of the foregoing cases indicates the danger of waiting for mercury to exhibit its specific influence; and the second, the inefficacy of tartar emetic to remove the mechanical obstruction; and thus where tracheotomy is finally had recourse to, tends to bring a good operation into disrepute.

In one case, we have the mineral producing salivation (but at a late period), and thus relieving the symptoms, and holding out hopes of ultimate success; but these were frustrated, in consequence of the low ebb to which the powers of life were reduced, by three causes—first, pneumonia; second, the secondary, or laryngeal affection; and thirdly, the effect of the remedy, notwithstanding the use of stimuli.

That the existence of mercurial action in the system does not modify the effects of inflammation, is evident, as this man was not entirely free from the action of the mineral when seized with the secondary affection.

Another important point is exhibited in this case—namely, that the disease of such a fearful nature may assume at first an appearance of one of every day occurrence—in fact, it may commence as a common sore throat.

Now, as to the propriety of performing tracheotomy in this case at an early period of the disease (notwithstanding the pre-existence of pneumonia), would that operation have afforded hope of ultimate success? I fear not, as the patient would have had to battle against bronchitis, which is almost a constant consequence of the operation.

However, I proposed the operation, but as it was considered that mercury had not had a fair trial, so it was determined to persevere in its use so long as hopes of success could be entertained. The result we have seen.

In the second case we see the fatal result follow the operation sixteen hours after the disease declared itself. The cause of failure in this instance is evident. Had the child had the benefit of the simple operation after the leeching and tartar emetic failed in affording permanent relief, I have no doubt it would have been successful.

From these facts I argue that the frequent failure of tracheotomy, like the similar result after the operation for the relief of strangulated hernia, is due to that remedy being too long delayed, in order to make use of less certain means of cure.

Mr. Parr has seen four cases of this disease, one of which was operated on by Dr. Porter, and recovered. In reply to a remark of Dr. O'Ryan, that he had seen in one of the French Journals scarifications of the rima glottidis recommended, Dr. Parr observed that the French had invented a sort of ring, of which he had two or three sizes, which was passed into the mouth, and kept down the base of the tongue, so that by means of such an instrument, scarifications of the rima glottidis might be effected without much difficulty.—*Dublin Med. Press.*

[A similar operation has been recommended by Dr. Buck in œdema of the glottis. See this Journal for Oct. 1847, p. 543.]

28. *Steracutine.*—Dr. Verga Andrea, of Milan, read a communication to the Italian Scientific Congress, held at Venice, Sept., 1847, on a fatty substance of a greenish colour, sometimes passsd by children at the breast, and to which the name of steracutine was given some time ago by Prof. Semmola, of Naples, and the production of which the Prof. ascribes to the imperfect digestion of the butyraceous portion of the milk. Dr. Verga's researches tend to elucidate the following points:—

1. That children at the breast void such solid fatty concretions, when under the influence of certain diseases, is correct. These concretions are more or less rounded, transparent in their periphery, soft to the touch, insoluble in water, but soluble in alcohol.
2. This substance is not voided by sucking children only; they have been seen at six and seven years old, and even in adults.
3. Nervous diseases are not the only affections connected with it; the author has observed it in measles and meningitis.
4. This substance is almost exclusively composed of stearine, and cholesterine exists in it in a very small proportion.
5. There is no constant and regular connection between these evacuations and the progress of the diseases during which they may be observed.
6. Like other excretions, this may prove critical and salutary, or it may be merely symptomatic, and of a bad omen.—*Lancet*, March 18, 1848, from *L'Union Médicale.*

SURGICAL PATHOLOGY AND THERAPEUTICS, AND OPERATIVE SURGERY.

29. *Cases of Femoral and Popliteal Aneurism successfully treated by Compression.*—A case of femoral aneurism cured by compression in thirty-three hours, by Staff-Surgeon Humphrey; and another of popliteal aneurism cured by compression in six days, by J. Tuffnel, Esq., with some very interesting remarks on these cases

and on the advantages which compression possesses over the ligature in the treatment of aneurism, by Dr. BELLINGHAM, are contained in the *Dublin Medical Press* for Dec. 1, 1847.

The subject of the first case was a soldier, 31 years of age, with an aneurism about the size of half an orange, at the lower third of the thigh, which had first been observed three weeks previously. At 12 o'clock on the 23d July, Read's aneurism compress was applied over the femoral artery of the groin, and the screw tightened so as to stop pulsation in the sac, and render the passage of the blood through the vessel imperceptible by the stethoscope. A clamp was loosely applied over the artery in the middle of the thigh, to be used when the pain from the instrument in the groin became too severe. In half an hour, the limb became slightly swollen, and of a darker colour, and its temperature fell. A flannel roller was applied from the foot to above the knee. In an hour and a quarter, the pain in the groin having become very intense, the instrument was relaxed, the clamp having been previously screwed sufficiently tight to command the circulation. About two o'clock (two hours after the first application of pressure), stinging pains began to be felt in the aneurismal sac and neighbouring part of the thigh, which became very tender to the touch. The point of pressure was changed every hour at first, but afterwards every twenty or twenty-five minutes, care being always taken to effect compression of the artery with the second instrument before relaxing the other, in order to prevent a jet of blood into the sac. At nine in the evening, the pain in the thigh being very severe, both instruments were loosened, and the part examined; the tumour was found to be much firmer, very painful when handled, and pulsated more feebly. An anodyne draught was administered, and the management of the instruments left to the patient himself during the night.

24*th*. The patient had no sleep from the pain in his thigh, and throughout the whole limb, which continued until three o'clock in the morning, and then gradually subsided. The tumour was considerably smaller and less painful, quite firm and solid, but still pulsated when the compressing instruments were taken off. The limb felt benumbed, and sensation was slightly impaired. Pressure was continued throughout the day by the two instruments alternately used. At nine in the evening, thirty-three hours after their first application, pulsation had entirely ceased in the tumour, the femoral artery could be traced to the sac, but no pulse could be felt in any of the arteries below that point, nor could the articular branches be felt about the knee. On the 25th, the use of the compressing instrument was discontinued. On the 4th Aug., the patient was discharged cured.

The second case occurred in a sawyer, 27 years of age, of intemperate habits, who came under Mr. Tuffnell's care on the 3d of Nov., with popliteal aneurism. At 2 P. M., Nov. 3d, twelve ounces of blood of a highly carbonaceous character were taken from the arm, and a drachm of the compound powder of jalap administered. At six o'clock P. M., pressure was commenced, by means of Read's instrument placed upon the artery as it crosses the pubis, and the ring tourniquet at the lower third of the thigh, the pulsation being entirely checked, and the patient taught how to alternate the pressure. This was borne till next morning at six A. M., when the pain became so severe in the limb generally, that he removed the instruments altogether.

November 6th. No alteration in the pulsation; the patient slept at intervals, and the bowels were once moved; pulse 78, and full. The same pressure was reapplied.

7*th*. The glands in the groin have become inflamed, and Read's instrument has been removed, the patient being directed to make pressure with his thumb against the pubis, and thus control the circulation, an assistant keeping his hand upon the tumour to ascertain the return of blood into it, and to direct increased pressure accordingly. The ring tourniquet was moved to the entrance to the canal in the adductors. At the evening visit, the leg was found to be œdematous, and the patient complaining of numbness, which was removed by bandaging the limb with a flannel roller, and elevating it on a stretcher made for the purpose.

8*th*. The pulsation has diminished, and the œdema is gone, the patient making no complaint. The ring tourniquet has been continued on the thigh, and pressure by a seven pound weight substituted for that of the thumb in the groin. Circulation has been arrested nearly all day.

9th. Says that he has not slept, that there is much pain *in the tumour*, and that he dreads unscrewing the ring tourniquet from the increased pain occasioned by the jet of blood into the sac. Patient slightly feverish, and complaining of headache, but of no pain in the foot or leg. Almost constant arrest of circulation during the past twenty-four hours.

10th. Using the ring tourniquet and weight; pain in the tumour diminished towards morning, when the patient slept, and awoke free from headache or thirst; says that he does not feel the blood jerk into the sac as heretofore, and that he does not now mind its influx. The clamps were substituted for the ring tourniquet and weight—one being placed at the centre of Scarpa's space, the other at the commencement of the canal in the adductors.

11th. Experienced much pain in the tumour and down the leg all the morning. At noon, whilst dozing, he was awakened by a sudden, acute, burning pain in the tumour and knee, which for two hours continued to be very severe. It then gradually subsided. On removing the pressure, *all pulsation in the tumour had ceased.* When visited at six, P. M., the foot and toes were cold, but friction speedily restored warmth, which was kept up by an extra flannel sock and roller.

12th. Sac solid; not the slightest thrill through the tumour, and a large collateral vessel running down the centre of its surface; slight numbness only of the limb; its temperature natural; compression continued for precaution's sake.

13th. At the evening visit last night, the patient was found smoking a cigar and intoxicated. His debauch, however, does not seem to have produced any ill effect. All pressure was removed to-day, a bandage having been fastened to the heel of his sock and to a belt round the waist, so as to check and prevent the sudden and complete extension of the limb during sleep.

The following remarks by Dr. Bellingham, who has been the ardent advocate of compression for the treatment of aneurism, are worthy of attention.

"The two cases which have been detailed," he remarks, "bring up the number of examples of popliteal and femoral aneurism successfully treated by compression, within the last five years, to thirty, in five of which the aneurism was seated in the femoral artery, in the remaining twenty-five in the popliteal vessel. Now, although a few cases may have occurred that have not been reported, it is obvious from the published cases that this mode of treatment has been, in a great measure, limited to Dublin. Thus from the London hospitals, only four cases have been reported, two by Mr. Liston, and two by Mr. Storks; five have been treated by military surgeons, including the two cases just read, this being the second which Staff-Surgeon Humphrey has treated since he has been stationed at the General Hospital, Phœnix Park; and two successful cases have been reported by naval surgeons; while all England, Scotland, and Ireland, with the exception of Dublin, have furnished within the same period but three other cases.

"It can hardly be that popliteal and femoral aneurism are so much more frequent here than elsewhere; but whatever may be the cause, it is obvious that if it be evidence of surgery having arrived at a more advanced state of perfection, where the necessity for operative proceedings is done away with, and a certain and safe method of treatment substituted for the knife (more particularly if the operation is one very perilous to life), then the surgery of aneurisms must be considered to have reached a higher state of perfection in Dublin than elsewhere, for during the last five years, but two cases of popliteal or femoral aneurism have been operated on in the hospitals in this city; and during the last three years at least, every case without exception has been treated by compression; and of twenty cases so treated, eighteen have been perfectly and permanently cured; of the remaining two, one, a patient of a broken-down constitution, died of erysipelas during the progress of the treatment; the other died of heart-disease shortly after the cessation of pulsation in the aneurism.

"It has been repeatedly and frequently urged against the treatment of aneurism by compression, that it is not only a much more tedious procedure than the ligature, but that it is also much more painful. There can be no doubt that if this method is undertaken by a surgeon who is ignorant of the manner in which compression effects the cure of aneurism,—who does not understand how to regulate the compressing force,—who is not aware of the degree of pressure necessary, or where to apply it most advantageously,—and who is not provided with the proper instruments for making compression,—the treatment will prove both tedious and painful, and we cannot wonder that it should fail in such hands; and the few cases which have been put forward with the object of deterring surgeons from using compression, present a sad contrast in this respect to the two just detailed. In Mr. Humphrey's case, for instance, compression for thirty-three hours was sufficient to cure the disease; in five days, the patient was walking about, and in five more, he left the hospital, the use of the limb being perfect; a period at which, if the operation had been performed, and everything had gone on satisfactorily, the patient would still have been exposed to the risk of ulceration of the artery and secondary hemorrhage. In Mr. Tuffnell's case, in which the disease was of longer standing, the sac of a larger size, the patient of intemperate habits, having recently had the venereal disease, and the treatment conducted under all the disadvantages of a crowded lodging, where the regulation of the compressing instruments must have been left in a great measure to the patient himself, the treatment, notwithstanding, lasted only for six days, and the patient in that comparatively short period was perfectly cured of a painful and dangerous disease. I cannot help, therefore, saying that any surgeon, with such powerful evidence in favour of compression as these two cases afford, coupled with the previous evidence in its favour, who would expose his patient to the pain and risk of the operation in popliteal aneurism, or in femoral aneurism low down, would, to use a mild expression, be exceedingly culpable.

"There are one or two points connected with the foregoing cases worthy of further remark. The first is the relief from pain which the second patient experienced when the compressing instrument was applied, and the return of pain when the pressure was removed; evidently owing to the stretching and compression of the parts about the aneurism being taken off when the blood was prevented from entering the sac in a full stream; and showing that when an aneurism is large and produces much pain, compression really relieves this pain, and its application affords so much ease to the patient that he willingly maintains continuous pressure.

"The second is the occurrence of severe pain, and of an unusual character, in the parts about the aneurism at the period that the pulsation ceased. This fact has been frequently mentioned in the details of the cases of aneurism treated by compression hitherto recorded; it was very well marked in both the cases just read, particularly in the second.

"I am of opinion that this pain is caused by the *sudden* enlargement of the collateral vessels, which ensues when the artery is obliterated at the point from which the aneurism springs, by which the neighbouring parts are necessarily also compressed, particularly the nervous twigs which accompany these arterial branches; because this pain does not set in until immediately before the pulsation finally ceases in the aneurism; because at this period we first detect pulsation in the articular arteries or other anastomosing branches; and because this pain subsides of itself after a time, as the new circulation becomes fully established. That the collateral vessels about the knee do not enlarge in popliteal aneurism until the aneurismal sac is filled up, and the artery at the part is about to be obliterated, is proved by their pulsation being detected first at this period; yet if we consult works upon surgery, we should be led to suppose that nothing was more easy than to bring about the enlargement of the collateral vessels; indeed, compression was formerly recommended by writers on aneurism with this object, as a preliminary step to the operation, by which they supposed the chances of success of the operation would be increased. But as the writers of the period to which I allude had not clear ideas respecting the mode in which the ligature effects the cure of aneurism, and were entirely ignorant of the manner in which compression brings about this result, we may be excused for not admitting their conclusions respecting the enlargement of the collateral vessels.

"As there seems, however, to be still some misunderstanding or some difference of opinion with respect to the exact mode in which compression effects the cure of aneurism, I shall avail myself of the present opportunity to make a few observations upon this point.

"It is obvious, first, that whatever mode of treatment may be adopted, unless the sac of an aneurism becomes completely impervious to the entrance of blood, the disease will not be cured.

"It is also obvious, secondly, that an aneurismal sac to be impervious to the entrance of blood, must become solid: that is, must be filled up with solid matter.

"Thirdly, an external aneurism to be perfectly and permanently cured, must not only become solid, but the artery at the point from which it springs must be obliterated.

"That these objects are fulfilled, as well when a cure is effected by compression upon the artery between the aneurism and the heart, as when the ligature is successfully used, or when the cure has been brought about by nature's unaided efforts, I shall now endeavour to prove.

"If we examine the sac of an aneurism where a spontaneous or natural cure has taken place, we find it filled with fibrin deposited in successive layers, the earliest or first formed being adherent to the interior of the sac, so as sometimes to appear almost to constitute part of its walls, and the succeeding layers in concentric laminæ, each within the other, until the cavity is perfectly filled. It is then completely impervious to the entrance of blood, and may be said to be cured, although the artery from which it springs preserves its channel unaltered.

"I had the opportunity of exhibiting to the society last winter an aneurism of the thoracic aorta, which had undergone a spontaneous cure probably many years previously, and which illustrated these points remarkably well.

"The consolidation of the sac being then the first and most essential step in the cure of an aneurism, and the deposition of fibrin in it being the process by which nature accomplishes this object, it is only reasonable to suppose that where artificial means are employed, they act by assisting nature in bringing about this result; we should therefore expect to find a similar condition of the parts after a cure by the ligature of the artery some distance above the sac, or after a cure by compression upon the artery between the aneurism and the heart; and this is exactly what we do observe.

"In the first case in which the femoral artery was tied for popliteal aneurism, the patient died of fever some months subsequently, and the opportunity was afforded for examining the condition of the parts; the sac was found to be solid, and filled with layers of fibrin. A drawing of the sac and of the artery is contained in the *Philosophical Transactions*, to which it was communicated by Sir E. Home. Many parallel cases are likewise scattered through the works of writers upon aneurism.

"A patient who had laboured under popliteal aneurism, and had been submitted to compression, but who died before the aneurism was cured, afforded me the opportunity of examining the condition of the parts. I found the sac of the aneurism in this case also nearly filled up by fibrin deposited in concentric laminæ. The preparation was exhibited to this society last winter, and is now in the museum of the college.

"Here, then, we have pathological evidence that the consolidation of the aneurismal sac is brought about in the same way, whether the disease be entirely left to nature, or whether it be assisted by art; and whether the artificial means used be the ligature or compression.

"Now, it is hardly necessary to observe, that in cases where a natural or spontaneous cure of aneurism takes place, the fibrin which fills the sac is deposited by the blood which circulated through it; there is no stagnation of the blood, no coagulation of it here; indeed the regular order in which the laminæ of fibrin are arranged, prove that they must have been deposited by a current of some kind. It is evident, therefore, that if, on examination of an aneurism, some time after its cure by the ligature, we find the sac filled with regular concentric laminæ of fibrin, a current of blood must have continued to pass through it subsequent to the employment of the ligature. It is equally evident also that if the same appearances are observed after the use of compression, a current of blood must in this case also have passed through the sac until it became filled and consolidated.

"The conclusions, then, to which we are necessarily led by the foregoing considerations are, that it is essential to the consolidation of an aneurismal sac that a current of blood should pass through it. Both the ligature and compression, therefore, would appear to act merely by assisting nature to accomplish, within a comparatively short period, what otherwise would have occupied a long time, or which, owing to a number of disturbing circumstances, she might never have been able to accomplish.

"In order, however, that the cure of external aneurism should be permanent (no matter by what manner it is brought about), it is essential that, in addition to the consolidation of the sac, the *artery* itself should be obliterated at the point from which the aneurism springs. This is a point which has been in a great measure overlooked, and it is one of which we find no satisfactory explanation in works on aneurism.

"Thus in all the cases in which the opportunity has been afforded for examining the condition of the parts a long time after the employment of the ligature for popliteal aneurism, the artery has been found to be obliterated at the site of the aneurism as well as at the site of the ligature, while between these two points the channel of the artery is preserved. In the only instances in which the opportunity has been afforded for examining the condition of the parts some time after the cure by compression of popliteal and femoral aneurism, the artery was obliterated at the point from which the aneurism sprung, and only at this point. In the cases which have been detailed by the older writers, where external aneurism underwent a spontaneous cure, and where the parts were examined subsequently, the artery was also found to be obliterated at this point, and at this point only and the appearances were precisely similar to those found after the use of compression.

"These facts, then, render it still more probable that the mode in which compression and the ligature act in bringing about the cure, is the same as that by which nature accomplishes this object—viz., by the deposition of fibrin continuing after the consolidation of the sac, until the artery, at the point from which the aneurism springs, is also filled.

"It is still supposed by some surgeons that pressure upon the artery between an aneurism and the heart, acts by causing the *coagulation* of the contents of the sac. Now if, for argument's sake, we suppose that compression cures aneurism by developing a coagulum in the aneurismal sac, how are we to account for the obliteration of the artery at the point from which the aneurism springs? How are we to account for the disease never having returned in any of the cases successfully treated in this city? How explain the non-occurrence of suppuration in the sac in any of these cases?

"If, by means of compression upon the artery at the cardiac side of an aneurismal sac, we could coagulate its contents (which is highly improbable), the artery would not be obliterated at the point from which the aneurism sprung, pulsation would return in the sac, and the disease would reappear, or suppuration in the sac would be likely to ensue, the coagulated blood acting as a foreign body, and the frequent handling of the sac contributing to this result. The fact of the disease having been permanently cured in every case in which compression has been employed in this city affords evidence (even if we were without pathological proofs), that the coagulation of the contents of the sac was not the agent in effecting this; while the circumstances under which pulsation has returned after the employment of the ligature, or suppuration has ensued after the operation, confirm what I have already said.

"When either of the foregoing accidents follows the ligature, it generally depends upon the vessel having been tied so close to the aneurismal sac that the blood is completely cut off from it, no current passes through it, and no fibrinous layers can of course be deposited; the blood, which finds its way into the sac after the operation, coagulates there; consequently we can hardly be surprised at a secondary aneurism forming under such circumstances, or that suppuration in the sac should ensue if the tumour is much or frequently handled. In the majority of cases, the ligature being applied at some distance above the sac, the blood soon finds its way into it by the anastomosing vessels, a feeble current passes through it, the fibrin is detached and deposited upon its lining membrane, and the cure is eventually brought about exactly as when nature effects a spontaneous cure, or when compression has been used; the cure is necessarily permanent, too, for the reasons stated, and suppuration of the sac never ensues, because fibrin, unlike coagulated blood, does not act as a foreign body.

"I have delayed upon those points here because I find that some surgeons are of opinion that by using and keeping up strong pressure, they will bring about the coagulation of the contents of the sac, and they expect in this way to effect a cure with greater rapidity. If this object could be effected by compression, it must be by a different mode from that which has been hitherto used. To produce this effect, in fact, it seems to me that it would be necessary to apply the pressure to the artery immediately above and immediately below the sac, and to maintain this so as to prevent any disturbance of the contents of the sac until the blood contained in it coagulated. But even if this could be accomplished, it may be gathered from what I have said that it would not be at all desirable to do so, as the patient would be then liable to a return of the disease, or to the accidents to which I have alluded. When strong pressure is used, so as completely to interrupt the circulation in the artery at the part, it merely acts by permitting a very trifling stream of blood to pass through the sac; and whether the pressure be strong or moderate, the cure of the disease seems to be effected in the same way.

"As there is a great difference in different individuals in the sensibility to pain, we may of course use stronger pressure, and continue it for a longer period in one subject than another; and a cure will of course be more quickly accomplished in a patient who can bear continued pressure for a considerable time, than in one who is so little tolerant of pain that he removes the instrument, or relaxes the screw the moment the surgeon is out of sight; and this seems to be one of the circumstances which has most materially influenced the duration of treatment in the several cases hitherto recorded.

"The pathological evidence which has been adduced, combined with phenomena observed during the progress of the treatment of cases of aneurism, all tend to prove that the cure of the disease is effected in one and the same way, whether the ligature is used, whether compression is employed, or whether the cure is brought about by nature's unaided efforts. It may therefore induce surgeons to look with more favour upon compression as a mode of treatment, if they will bear in mind that, when they place a ligature upon an artery for aneurism, before a cure can take place, the artery of the limb must be obliterated at *two points* of its course—viz., at the site of the ligature and at the site of the aneurismal sac; and this must be accomplished within a comparatively short period, or secondary hemorrhage will ensue from the wound, or a secondary aneurism will form at the site of the sac. We can hardly be surprised, therefore, that so many accidents surround the operation, and the amount of success which has hitherto attended it only proves the unbounded powers of nature. Indeed, as the circulation of a limb must be with some difficulty maintained, when the artery which supplies it is obliterated at two points of its course, we cannot be surprised at gangrene supervening upon the operation in a case where the aneurism has been allowed to attain a very large size, by which the anastomosing vessels are compressed or prevented from enlarging, and by which the return of the venous blood from the parts below is interfered with.

"On the other hand, when compression is employed, the artery is eventually obliterated at one point only in its course: the treatment is altogether unattended by danger; there is no risk of secondary hemorrhage; none of the formation of a secondary aneurism: while it possesses this great advantage, that it can be intermitted and resumed according to the varying circumstances of each particular case."

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30. *Oblique Fracture of the Femur immediately above the Condyles.*—Mr. James Spence was sent for on the night of the 9th of July, 1845, to visit Mr. M——, who had been found lying insensible at the foot of a very steep stair, down which it was supposed he had fallen. On arriving at his house, he was found lying on a couch; the right thigh was fractured close above the knee-joint, and as the limb was imperfectly supported, the sharp point of the broken shaft of the femur was seen projecting, merely covered by the skin. There was great effusion around, and into the knee-joint, and the patella was found, after some manipulation, lying deeply seated towards the inner side of the projecting end of the shaft of the femur, and apparently locked between it and the condyles. By extension, the projecting portion was considerably reduced, and then the appearance of the limb when

viewed laterally was very similar to dislocation of the tibia backwards. On further examination, there was found a fracture of the neck of the humerus, and of the ribs on the same side, and several contused wounds of the head and face. After putting up the fracture of the humerus and bandaging the chest, the patient was placed in bed, and it was attempted to complete the reduction and co-aptation of the fractured femur. Extension was made on the leg by two gentlemen, whilst counter-extension was kept up by means of a folded shawl applied as a perineal band by another party; but this attempt was ineffectual, as the projecting shaft seemed locked by the position of the patella. As the projection was to the outer side of that bone, extension was next made in an oblique direction in the axis of the broken shaft of the femur, and it was endeavored to disengage the bone from the muscles through which it had protruded, by bending the leg and thigh towards the pelvis; but these attempts were attended with but little further benefit to the position of the bone. The long splint was therefore applied to keep up what advantage had been gained by extension, and a large opiate, with occasional doses of camphor mixture, was ordered.

Next day, with Mr. Syme in consultation, further reduction was again attempted by extension, but ineffectually; the splint was therefore again applied. The patient, who had been very excitable before the accident, became gradually worse: delirium set in, antimonials combined with opiates were given, but could not be continued, owing to the state of the pulse: the camphor mixture and opiates somewhat relieved him and procured rest; but he gradually became worse and died on the 13th of July, the fourth day after the injury.

With some difficulty permission was obtained to examine the broken thigh and take a cast of it; but no further examination was permitted. On dissecting off the skin, the sharp point of the broken shaft of the femur was seen to have perforated the cruræus and vastus externus muscles, appearing immediately on the outer edge of the tendon of the rectus, which it had also perforated; it overlapped and pressed firmly upon the upper and outer edge of the patella, locking it against the condyles of the femur. The condyles and the lower fragment of the femur, together with the leg, were drawn backwards, upwards, and rather inwards; the sartorius and inner-hamstring muscles were very much relaxed. After taking the cast of the dissected limb, efforts were made to reduce the bone, but still in vain; the wound was then enlarged upwards in the axis of the bone, but without success, until the vastus was divided, together with a small part of the tendon of the rectus, in a transverse direction, when reduction was accomplished with the greatest ease. On this being done, the condyles separated, showing that they had been split up by the injury; and, on carrying the dissection further, the bone was found comminuted into numerous fragments.

Remarks.—The kind of fracture of which an example has been given is not of very frequent occurrence, and opportunities of examining the exact state of parts by dissection are very rare. Sir Astley Cooper, in his work on fractures, has given the history of two cases, and states, that he considers it "a most formidable injury from its consequence on the future form and use of the limb; for it is liable to terminate most unfortunately by producing deformity, and by preventing the flexion of the knee-joint." He also gives an account of the dissection of a case of this kind of fracture which he had an opportunity of seeing in a body brought into the dissecting-room, and of which a plate is given in the large edition of his work. All the cases mentioned by Sir Astley, seem to have terminated unfavourably as regards the usefulness of the limb; and though he does not mention that there was any difficulty in reducing and replacing the bones, and seems rather to impute the bad result to the difficulty of keeping up extension, Mr. Spence was of opinion that the ordinary long splint would keep up the extension sufficiently, if the broken ends of the bone were fairly brought in apposition. From the state of parts found on dissection in the case related, as well as in the dissection given in Sir Astley's work, there must, in most of these cases, be great difficulty in freeing the end of the shaft from the muscular fibres through which it has protruded. Although the projection may be considerably diminished by extension, there will, in cases where the bone has passsd through the cruræus and vastus muscles, be a risk of muscular fibres intervening between the broken surfaces, and so preventing firm union. The position of the patella, also, firmly fixed to the inner side of the projecting end of the shaft, and locked between it and the condyloid portion of the femur, serves to check extension and prevent the lower broken portion being brought into a line with the shaft. From the ease with which the bone was reduced after death, when the fibres of the muscles surrounding it were divided transversely, although it had previously resisted strong efforts at extension, and free longitudinal incision, the author, in similar circumstances, taking into account the usual unfortunate termination of such cases, considered himself warranted in dividing freely the muscular tissues surrounding the projecting bone by means of subcutaneous incisions, as any additional risk from such a proceeding would be more than compensated for by the advantage obtained from its facilitating the reduction and co-aptation of the broken bone. It will be noticed that in this case, when extension was effected, the condyloid portion of the femur was found split longitudinally. This must be of very frequent occurrence in such accidents when the bone is broken so low down as in the case just related, and when we consider the anatomical formation of the femur near the knee-joint. But it is a lesion which cannot be fairly ascertained so long as the other fracture is non-reduced, because the lower broken portion of the shaft presses the outer condyle against the inner, and so keeps them firmly locked together.—*Proceedings of Medico-Chirurgical Society of Edinburgh*, April 19th, in *Monthly Journal and Retros. of Medical Sciences*, May 1848.

31. *Case of Compound Fracture of the External Condyle of the Femur, laying open the Knee-joint, complicated with a simple Transverse Fracture of the Lower Third of the same Bone.* By W. P. Brookes.—The subject of this injury was a lad, aged eleven years and a half. The accident occurred in 1845: whilst the boy was in the act of getting up behind a coach, he fell, and the left leg and thigh got entangled between the spokes of the hind-wheel whilst in motion. On examining the limb, the author found a compound fracture of the femur, extending obliquely downwards through the external condyle, which was movable with the lower portion, projecting through a wound in the popliteal space. The leg was twisted inwards, much hemorrhage had taken place, and the patient was in a state of collapse. On further examination, the capsular ligament was found to be lacerated, and synovia escaped,—the wound in the popliteal space being as large as a five-shilling piece. There was also a simple fracture of the lower third of the same thigh-bone. When the boy rallied, amputation was proposed and urged as the only chance of saving life; but the father refused to sanction the operation. The limb was therefore adjusted, and the natural position maintained, as well as the circumstances would admit of, by a straight splint, extending from the hip to the ankle, and a concave one on the inner side of the thigh. For some time the constitutional disturbance was very considerable, but gradually subsided. At the end of the sixth week the splints were removed, and the fractures were found to be firmly united. The lad has recovered the entire use of the limb, on which he can bear his whole weight, and can bend the knee-joint at right angles. There is no perceptible difference in length between the two limbs. The author concluded with some remarks upon the rarity of recovery after so severe an injury, and considered that the case he had narrated should act as a practical lesson to the surgeon to trust more to the *vis medicatrix naturæ.—Proceedings of Royal Med. and Chirurg. Society*, in *Lond. Med. Gaz.*, March 1848.

32. *Fracture of the Olecranon—new method of bringing the fragments into apposition.* By M. Hervez de Chégoin. The difficulty of maintaining the two portions of a fractured olecranon in contact, without keeping the forearm in a position which, if fixedly preserved, would render its functions useless after the time necessary for consolidation had elapsed, has caused the greater number of surgeons to be satisfied with a union as little mediate as possible, by preferring the semiflexed position of the limb to its complete extension, which, however, has been adopted by some with success. The case observed by M. Baudens is well known; and perhaps after a greater number of instances, this method will be more generally tried; perhaps, too, it is more easy to bend an arm which has been kept long extended than to extend one which has been long flexed, because the muscles of flexion are more powerful than their antagonists. But the utility of a bent forearm, and the

helplessness of an extended one, have till now given the preference to the semiflexed position. In the meantime, I wish to make known a plan that I have recently adopted with the greatest success.

A woman, 65 years of age, of very spare habit, fell violently on the staircase, and fractured the left olecranon a little below its middle. I did not see her till the next day; there was then considerable swelling above and within the articulation down to the middle of the forearm; while the point corresponding to the fracture was scarcely swollen, and the skin then preserved its natural colour, which gave reason to suppose that the fracture, though caused by the fall, was the result not of direct violence, but of muscular action.

The fragments were separated by an interval of nearly half an inch; they were easily brought together by extension of the forearm and pressure on the upper portion, but an involuntary movement of flexion immediately separated them.

The contusion of the arm and forearm had been violent. The swelling and ecchymosis increased on the following days, and extended to the hand. The pain became more severe on the eighth day, and the cold lotions were exchanged for emollient poultices. The joint, however, remained free from this tumefaction, which confirmed my view of the manner in which the fracture had been produced, and allowed me to see what took place between the two fragments.

On the eighth day the interval between them was filled by a soft substance, which increased in quantity on the succeeding days, so as to rise above their level behind. It had become more liquid, and afforded an evident sense of fluctuation.

On the fifteenth day it was much reduced, and allowed the finger to be placed between the fragments. By this time the pain and swelling of the forearm had nearly disappeared, but the ecchymosis remained down to the wrist, with a degree of induration of the soft parts. The forearm till now had been kept on a pillow in the semiflexed position without any apparatus, of which the patient was singularly apprehensive from the recollection of what she had suffered from bandages too tightly applied for a fracture of the clavicle.

The object was now to bring the fragments together without exercising any compression, and at the same time to keep the forearm semiflexed. For this purpose I contrived the following apparatus:—I placed the limb in a hollow, jointed splint, deeply excavated behind so as to leave the posterior surface of the joint free. At the upper part of this hollow I fixed a piece of elastic gum, about two inches square and a third of an inch thick, by means of narrow tapes passed from within outwards through two holes made on each side. At the two inferior angles were fixed two other tapes, which I also passed from within outwards through two holes bored on each side of the lower margin of the excavated portion of the splint. I then applied the piece of elastic gum above the upper fragment, and by gently drawing the lower tapes, brought it easily into contact with the inferior fragment. Fearing, however, that this pressure might cause some pain, I loosened the tapes a little, satisfied that a slight but continued action would overcome the muscular resistance.

The fragments became gradually approximated, merely taking care to tighten the tapes according as they became relaxed, and at the end of six weeks were so close that the finger could scarcely detect the interval between them. About the thirtieth day I began to give a little passive motion to the joint; this caused a little pain, not in the joint, which all along was free from any inflammatory action, but in the soft parts of the forearm, which for a long time continued indurated by the blood infiltrated in their substance and beneath the integuments, which, after two months and a half had elapsed, retained the yellow hue of old contusions. The patient, however, could execute with facility the fullest movements of flexion and extension.—*Dub. Med. Press,* May 24, from *Gazette des Hôpitaux.*

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33. *Cases of Ununited Fracture successfully treated.* By W. B. Page, Esq.—The first case narrated by the author was that of a young man, whose radius and ulna had been fractured thirty-four weeks, before the operation of excising the fractured extremities of the bones was had recourse to. He had suffered from other fractures at the same time, which had united soundly. The injured forearm was an inch and a half shorter than the sound one; the fracture of the bones was oblique, and the shortening resulted from overlapping of the extremities. The seat of

fracture was exposed by incisions over either bone on the posterior aspect of the forearm; and a curved director being passed beneath each fragment in succession, they were removed by means of a small Hey's saw, and with the assistance of cutting forceps. The forearm was then immovably fixed in an angular splint, in a position between pronation and supination. At the end of ten weeks, union was complete; and after the lapse of six months, the patient had almost entirely recovered the original use and strength of his arm. The second case was one of ununited fracture of the tibia and fibula. In this instance the cause of non-union appeared to have been the want of entire and sufficiently prolonged rest, which was accordingly resorted to for two months, but without a satisfactory result. The author then inserted two setons, one over the outer, the other over the inner, surface of the fractured bone; but the threads were removed in ten days, in consequence of the inflammation that ensued. In two months more, union was complete. In the third case the injury was likewise a fracture of both bones of the leg. Mal-treatment caused protrusion of the tibia, a portion of which was removed with a saw at the end of two months; and this operation was followed by repeated exfoliation from both tibia and fibula. In this way nine months elapsed before there was any attempt at union, when the patient came under the author's notice. His first care was to heal the wounds, and then to keep the limb at perfect rest for three months. Union was then complete. The fourth case was an illustration of non-union from want of proper nutriment. When this necessary adjunct to surgical assistance was supplied, the patient, a female, speedily recovered. In the fifth and last case, non-union of fractured tibia and fibula was accounted for by syphilitic taint in the system, which was corrected by the specific influence of mercury, and then union took place. The author concluded with some general remarks on the cause of non-union of fractured bones, as illustrated in the preceding cases, and by remarking that the serious operation of resection of the fractured ends is admissible only in a limited class of cases, such as that narrated in his paper.—*Proceedings of R. Med. C. Soc.*, in *Lond. Med. Gaz.*, March 1848.

34. *Diagnosis of Incomplete Fractures.*—M. Debron, relating a case of fissured fracture of the lower end of the femur, which was undetected during life, observes that while the obscurity of these cases, owing to the absence of crepitus and all the usual symptoms, renders detection difficult, it is very important for the patient that this should be effected; else he is not placed under restrictions in the movements of his limb, which are essential to his well-doing, inasmuch as incaution in this respect has led to the development of inflammation. which has terminated in death, or the loss of the limb. *Severe pain* at the seat of fracture, distinguishable from the more diffused. less fixed, and less intense pain of the accompanying contusion, is one of the best signs. If the indication furnished by this is overlooked or inappreciable, and the limb is not secured, another sign manifests itself, viz., *erysipelas arising at the very seat of fracture*, thus developing itself after the inflammation depending on the contusion had subsided. This erysipelas is accompanied, too, by an œdematous or pasty feeling of the part. The delay (perhaps several days) in the appearance of this form of erysipelas, arises from the inflammation first occurring among the soft parts around the bone, and spreading from within outwards (inversely to what it usually does), it being, in fact, but a symptom of the suppuration which is going on between the bone and the muscles.—*B. and F. Med. Chir. Rev*, April 1848, from *Archives Gén.*, tom. xvi.

35 *On Petit's Operation for the Relief of Strangulated Hernia.* By James Luke, Esq.—The object of the author in this communication was to place before the profession the result of his experience in operating for strangulated hernia, without opening the sac. He remarked, that though experience was the only fair test by which the relative merits of this and the ordinary operation could be decided, the subject was encompassed by many obstacles, such as the impossibility of obtaining exactly parallel cases, the importance of not mixing the observations of different surgeons or judging from selected cases. To obviate these difficulties and sources of fallacy, the author has yielded up the whole of his experience on the subject of Petit's operation, which is the only mode of operating he has adopted since the year 1841, as an ordinary practice. Being unable to supply from his own case-

book the result of cases operated upon by opening the sac, the author appealed to the experience of others, referring especially to statistical details given by M. Textor, Mr. South, M. Malgaigne, and collected at the London Hospital, and from the British journals generally, which gave a return of mortality of from one-third to more than one-half. Where the taxis is successful, similar statistics prove that a fatal result is very rare. The conclusion which seems naturally to flow from these facts is, that operative interference should be deferred, and the taxis pursued as long as it offers any prospect of a successful issue—an inference, however, which the author considers to be fallacious and mischievous in its tendency, as involving a rife source of procrastination, which in itself is the too frequent cause of non-success attending the operation. This assertion is borne out by statistical details of cases operated on at different periods, after the establishment of symptoms of strangulation. The author then proceeded to remark that the desideratum appeared to be, the introduction of an operation by which the taxis would be aided, but without incurring the risk attending the ordinary operation, by exposure of the contents of the hernial sac; and these objects he considered to be fulfilled by Petit's operation. Inclusive of selected cases occurring between 1831 and 1841, the author stated that he had attempted the performance of Petit's operation in eighty-two instances, which, with four exceptions, likewise comprised all the cases that had come under his care since 1841. Of this number the operation was completed, without opening the sac, in fifty-seven. In twenty-five it was necessary to open the sac to complete a reduction of the hernial contents—the opening varying in extent from half an inch to one inch and a quarter. With respect to the mortality amongst these patients,—of the fifty-seven in whom the sac remained unopened, seven died; of the twenty-five in whom the sac was opened, eight died. The author considered, however, that for statistical purposes it was preferable to exclude the selected cases (twenty-six in number), together with four other cases, of which three were considered moribund at the time the operation was performed, and the fourth died of secondary stricture six weeks afterwards. Of the remaining fifty-two cases, the sac was opened in twenty one, of which three died, and not opened in thirty one, of which two died. Of the cases in which the sac was opened, in ten the strangulation of the contents had existed, before the operation was performed, under twenty-four hours, of which number one died; in eight, above forty-eight hours, of which one died. Of the unopened cases, the strangulation had existed in thirteen under twenty-four hours, of which not one died; in eleven, under forty-six hours, of which one died. The author considered it important that the small size of the opening made into the sac, in the former class of cases, should be borne in mind, as it doubtless had an important influence in diminishing the ratio of mortality attached to this mode of operating. He then passed on to further details relating to the above cases, and the reasons for opening the sac, and stated that, of the fifty-two instances cited, twenty-nine were femoral, twenty inguinal, and three were umbilical hernia. He further pointed out the conclusion, from an analysis of the foregoing cases, that Petit's operation has proved most successful in the femoral form of hernia. In cases of inguinal hernia, the author limits his incision to a longitudinal division of the skin and fascia over the neck of the sac, of which cut the seat of stricture should be the centre. He then partially incises or scarifies the neck of the sac (if the seat of stricture, as it usually is), so as only partially to divide it, and so that it shall yield to the subsequent application of the taxis. In femoral hernia he considers it very desirable to avoid, as much as possible, interfering with the tumour in conducting the operation, and therefore recommends that a similar proceeding should be adopted—the centre of the perpendicular incision in this case being between the upper part of the tumour and the abdominal surface. Poupart's ligament is thus reached by carrying the finger from above downwards, and the stricture is divided on a director, introduced into the femoral ring. The operation advocated by the author is not considered by him to be so applicable in umbilical hernia, except where it is of small dimensions. The author concluded by noticing and combating the various objections which have been raised to Petit's operation, and by insisting on its value, apart from other considerations, as holding out inducement to surgeons to proceed with less delay to the performance of the operation, as he considered that procrastination, arising from the dread of having recourse to the more severe operative interference ordinarily adopted, was in itself (as already remarked) a rife cause of the mortality which unhappily has too generally attended these cases.

Of the patients who had died after the operation detailed, Mr. Luke stated that in the first case the patient died from exhaustion, four days after the operation. No symptoms of inflammation were present. The second case was one of umbilical hernia, in which the symptoms of strangulation did not subside, although there were unequivocal proofs that it was removed, as the bowels acted freely. In three cases the patients sunk so soon after the operation, that he could not say of what they died. The condition of the bowels was not examined into. In no case was there any sign of inflammation, either as the result of the operation, or of strangulation.—*Proceedings of the Roy. Med. Chirurg. Soc.*, Feb. 22, from *London Med. Gaz.*, March 1848.

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36. *Operation for Strangulated Umbilical Hernia.* By G. B. Childs, Esq.—At the meeting of the Royal Medical Chirurgical Society (Feb. 23), a plan proposed by Mr. Gay was mentioned, in which the object of the operator is to get at the stricture without at all exposing the hernial tumour. Mr. Childs has since performed in the operation in accordance to this plan.

The hernial tumour, which was of two years' standing, had become strangulated on the evening of the 7th of March. It was at least eight inches in its longest diameter; lay principally to the left of the umbilicus, on the abdominal parietes, which it depressed to a depth that made the distance between them and the integuments very considerable; and obviously consisted of a large mass of omentum as well as intestine. An operation for its relief was immediately required, and that proposed by Mr. Gay adopted, on the grounds that, from its great size, the corpulency of the patient, and the extent of wound necessary for its performance in the ordinary way, hardly any but a fatal result could be anticipated from it.

The patient was first placed under the influence of chloroform, and then a wound through the integuments and superficial fascia, not more than an inch in length, was made on the right side, just beyond the edge of the hernial mass. The finger was directed through the wound, and after separating some few bands of cellular and other tissues, which feebly obstructed its course, the neck of the sac was reached at a depth of at least four inches. The umbilical ring forming the stricture, was then felt constricting the neck of the sac, to which it was adherent, by means of some strong bands. These were broken down with the finger, but not without some difficulty, owing to the great quantity of fat, and consequent depth of the wound. A director was then insinuated between the sac and the ring, guided by the finger, which still remained in the wound, and the stricture divided. After breaking down some further adhesions, the parts were liberated, and the contents of the sac immediately returned. The patient had her usual truss applied at once, and no bad symptoms occurred to prevent her complete recovery.

The usual fatality attending operations for umbilical hernia, would, in the prognosis of the present case, have excited grave doubts as to the result, had the old operation been adopted; and Mr. C. thinks that the simplicity of the principle upon which the new operation is based, the little difficulty in ordinary cases of practising it, and the lessened probability of its being followed by any severe symptoms, form very decided arguments in its favour.—*Lancet*, March 18, 1848.

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37. *On the operation of Gastrotomy as applicable to cases of obstructed Œsophagus.* By Prof. Sedillot.—The operation here proposed consists in incising the abdominal parietes opposite the anterior wall of the stomach, making an opening into the latter, and connecting the edges of this opening with the external wound, so as to form an artificial fistula, by which sustenance may be administered in cases where irremediable obstruction of the natural passage exists. Such cases, if left alone, are quite desperate, their only possible termination being death by famine; and Sédillot, therefore, holds that it is justifiable to interfere by any means which offers a chance of safety. That the operation which he proposes is not impracticable, is proved by various cases (such as that of the celebrated Alexis St. Martin), in which a stomachal fistula occurred, as a consequence of accidental wounds; and also by the experiments of Blondlot on animals, in one of which he kept a dog in

health two years, nourishing him by means of an artificial fistula of the kind described. Experiments of this description have also been performed by Sédillot himself, with a successful result. With these facts before him, he argues, that, although gastrotomy ought not to be proposed where there is a probability of life being continued for some time without interference, yet in those in which death is evidently imminent, and where there is no other resource, the surgeon ought not to hesitate about giving his patient the chance of a prolonged existence, and freedom from suffering.

If this be admitted, it is evidently of great importance to keep in view those circumstances under which obstruction of the œsophagus might render such an operation necessary. The author, therefore, enters into an elaborate review of all those lesions of the œsophagus which lead to permanent constriction of the natural passage. He gathers from pathological writers a great variety of cases, which he arranges under fifteen heads, viz:—

1. Congenital absence of part of the œsophagus.
2. Stricture in consequence of tumours in the neighbourhood of the œsophagus.
3. Tumours formed between the tunics.
4. Hernia of the mucous membrane.
5. Polypi.
6. Stricture, by atrophy of the tube, without appreciable lesion of its walls.
7. Atresia, from cicatrices, with loss of substance.
8. Fibrous stricture.
9. Fibrous degeneration of the muscular coat.
10. Cartilaginous stricture.
11. Osseous transformation.
12. Complete obliteration.
13. Cancerous stricture.
14. Impermeable stricture of the cardia.
15. Fatal œsophageal stricture without known cause.

The cases to which the operation is applicable, as above enumerated, appear to be referable to two divisions; the first being those cases in which the operation is performed without hope of modifying thereby the original diseased condition, and merely to prevent death by hunger; the second, comprising cases in which the original condition is susceptible of modification, and where the establishment of a new passage to the stomach either assists the cure, or prevents the further progress of the disease. In this respect, the proposed operation has a close analogy in its mode of application to the more familiar one of tracheotomy.

The principal cases to which gastrotomy is applicable, according to Sédillot, with the double purpose above mentioned, are those comprised in the 4th, 7th, and 13th sections of his arrangement. In the 4th series, in which the mucous membrane is thrust through the other tunics, so as to form diverticula, he holds that the constant passage of the food distending these abnormal pouches is certain to keep up the morbid lesion, and, even by dilating the pouches still farther, to hasten the ultimate obliteration of the normal passage; whereas, if the operation of gastrotomy be performed, there is a probability that the pouch may, in time, contract and obliterate itself. In the 7th series, comprising all the wounds and inflammatory lesions of the œsophagus, in which there is hope that the judicious employment of catheterism might ultimately restore the tube to its function, Sédillot holds that gastrotomy will often permit us to continue this treatment when otherwise the death of the patient by inanition would have frustrated our efforts; and he believes that, in such cases, the chances of cure will often be greatly increased by the complete rest which is obtained in the intervals of treatment for the diseased portion. Finally, in the truly cancerous lesions, where the diagnosis can be ascertained with any degree of certainty, he conceives repose of the part to be of the first consequence, as both catheterism and the passage of food through the cancerous part, tend very much to the rapid progress and fatal issue of the disease; and he thinks, therefore, that gastrotomy may possibly be found to be applicable to cancerous cases at an earlier period than that at which death by inanition is imminent.

It is necessary to state, that the operation has never yet been performed by Sédillot, although he so strongly advocates its performance —*Med. Journ. and Retrosp. of Med. Sci.*, April 1848, from *Gazette Médicale de Paris*, Jan. 1847.

38. *On the Treatment of Strictures of the Œsophagus by Catheterism and Cauterization.*—M. Gendron is of opinion that many strictures of the œsophagus, which at first appear incurable, will be found to yield to careful and protracted treatment by the œsophagus-bougie, with occasional use of cauterization. He objects to the treatment proposed by Sédillot (see last article) as being unpractical and hazardous. The use of the bougie, on the contrary, is in no way dangerous if due care be taken; and the objections of the patient to it are of short duration, as the œsophagus becomes very soon accustomed to the stimulus of the instrument. So long as there is any obstruction, it is necessary to support and guide the bougie in its passage downwards, by means of two fingers of the left hand introduced into the pharynx. Dilatation occurs very gradually, and sometimes there appears to be a re-contraction, rendering it necessary to return to a smaller size of instrument after some progress has been made. The completeness of the cure is to be judged of chiefly according to two circumstances:—*First*, the ease with which a full-sized bougie can be passed, *using one hand only; second*, the disappearance of the tracheal rale, and unnatural quality of the voice, which almost invariably accompany an œsophageal stricture.

M. Gendron alludes to four cases in which he has succeeded in curing tight strictures of the œsophagus by the method here spoken of. Three of these were in consequence of diphtherite; one was without known exciting cause; one was not more than eighteen days under treatment; the rest from one to two months. Cauterization, by nitrate of silver, was employed in three of the cases; in two repeatedly; in the other, only twice. The elastic bougie, or the whale-bone staff with sponge, was used at short intervals; often several times in each day, but not so frequently after cauterization.—*Ibid.*, from *Ibid.*, No. 11.

39. *Fractured Patella—Subsequent Laceration of the Soft Parts, implicating the Joint.*—Dr. Croker King related the following example of this very rare accident, to the Surgical Society of Ireland (Nov. 20th, 1848).

The subject of it, a gentleman, was tripped by the rope of a canal boat, and, ineffectually endeavoring to regain his feet, he fell to the ground, from which he was unable to rise without assistance; this occurred on the 29th of Sept., 1846.

On examination a fortnight after the receipt of the injury, a transverse fracture of the right patella above its centre was apparent; the fragments were separated about three-fourths of an inch. The injury was treated in the usual manner; coaptation of the fragments was accurately maintained, but bony union did not take place.

On the 2d of March, 1847, five months from the receipt of the accident, the limb presented the following appearance:—The fragments had become separated to the extent of half an inch. The motions of the knee-joint were still considerably restricted, though it could be slightly bent. The patient could walk tolerably well without the assistance even of a stick. The joint measured thirteen inches and a half in circumference, the tape being carried round the joint at the seat of fracture.

On the following morning I received a hurried summons to visit this gentleman, who resided some distance from town. On my arrival I was informed that on the previous evening (while crossing the room), the knee had suddenly bent under him, that he suffered a severe shock, was sensible of something having given way, and that the knee had burst, and bled profusely.

On examination, an immense gash presented itself; it ran across the front of the joint corresponding to the interval between the fragments, which were now separated at least one inch and a quarter. The wound was half an inch wide and seven inches long, and consequently exceeded in extent half the circumference of the limb. The wound was occupied by coagula of blood, which had become hard and dry, fourteen hours having elapsed from the receipt of the injury.

I certainly felt much alarm for the safety of the limb on inspecting this formidable wound, as I did not see how the joint could have escaped being laid open. It was evidently the most judicious plan not in any way to disturb the dried coagula.

An attempt was made to approximate the edges of the wound. Such was found impracticable, as the skin was adherent to the separated fragments of the patella. The limb was placed on a hollow splint, and the integuments supported by broad strips of adhesive plaster to prevent the further retraction of the edges of the wound, and the entire was covered with light dressing.

In a few days severe constitutional disturbance supervened; the tongue furred; the pulse beat hard and frequent; and suppuration was freely established. On pressing the lower fragment, *it yielded*, and a copious discharge of purulent matter issued from the centre of the wound, and from the angles a transparent fluid, presenting all the appearances of synovia: the fever quickly assumed a hectic character

A deep-seated abscess now formed on the inside of the limb, extending upwards for at least eight inches. The patient's countenance was expressive of much distress. The nights were passed with little sleep; and notwithstanding the exhibition of three grains of solid opium on the previous evening, the patient had enjoyed little rest, being constantly disturbed by pain and severe spasms extending up the limb; the pulse had risen to 120; the tongue was heavily coated, and the patient rapidly emaciating; there was, in addition, diarrhœa with bloody discharges, cutting pains in the abdomen, and night perspirations—in fact, the case was altogether as unpromising as it well could be, and the question of amputation as the only probable means of saving the patient's life of course suggested itself: however the liberation of the contents of this extensive abscess was first determined on. I made an incision an inch and a half long, four inches above the joint, and gave exit to ten ounces of most abominably fetid pus, mixed with clots of blood and sulphuretted hydrogen gas, which bubbled up through the matter—in fact, just such a discharge as we see in a suppurating hematocele. On the following day the matter having gravitated in considerable quantity and accumulated in the vicinity of the knee, I passed a director through the wound downwards to the most depending position, and, cutting on its extremity, thus made a counter opening. This great sinus being thus completely emptied, its walls were carefully and in the most accurate manner approximated by means of a circular bandage and well-adjusted compresses.

On visiting the patient on the following day, the change which had taken place in his general appearance was not a little remarkable. The haggard and fretted look had been replaced by a joyous expression. On inquiring how he felt, he replied "gaily;" he had, in fact, slept soundly; experienced no pain; the pulse had fallen to 80; the diarrhœa and night perspirations had ceased, and never returned; and what certainly surprised me, the walls of the sinus had become adherent at every point; there was not a single drop of discharge from the incisions, nor was there the slightest tension.

From this time the case progressed most favourably; the amount of discharge from the wound, which was a little tedious in healing, daily diminished, and cicatrization was complete on the 4th of April, thirty-three days from the receipt of the injury.

The cast which I exhibit was taken seven months subsequently. You observe a great transverse cicatrix corresponding to the wound, and two smaller perpendicular ones marking the site of the incisions. The fragments are at present two inches apart, and in the interval the external condyle of the femur is to be plainly seen and felt, apparently having no other covering but the integuments, and you may perceive that the transverse cicatrix runs *immediately* above the lower fragment.

The separation and the apparent total absence of ligamentous union between the fragments imperatively demanded some mechanical support to prevent a second yielding of the limb. I was enabled to obtain a very efficient apparatus from Mr. Millikin of Grafton-street. It consists of sole leather so prepared as to accurately mould itself on the irregularities of the joint. This gives complete support, and the gentleman is able to walk about without any other mechanical assistance.

Bell, in his Operative Surgery, mentions having observed a similar case. "I have seen," he remarks, "a very terrible accident follow the imperfect cure of the fractured patella. The bone had united by ligament, and this ligament had incorporated with the skin in such a manner that it lost much of its pliancy. The poor man was carrying a burden and fell backward, the knee sunk under him, and the whole forepart of the joint was laid open by laceration. The case terminated in amputation of the limb."—*Dublin Med. Press*, Dec. 8th, 1848.

40. *Catheterism.*—The apertures in the catheter sometimes during its introduction into the bladder become completely plugged with coagulated blood, *entirely preventing the flow* of urine through the instrument. The following suggestion for overcoming this difficulty, offered by Mr. W. N. SPRONG, (*Lancet*, June 9th, 1848,) it seems to us will prove highly useful. He proposes to introduce the pipe of a common syringe into the orifice of the catheter, and by drawing up briskly the piston, the blood, he says, will be drawn into the cylinder of the catheter when the urine will flow quickly.

41. *Tracheotomy in Tetanus.*—Dr. HUGHES stated at a meeting of the South London Medical Society, Feb. 3d, that lately tracheotomy had been performed for the relief of tetanus, from the belief entertained by some, that death occurred in many cases from spasmodic closure of the glottis, but it had entirely failed; showing clearly that this accident was not always the cause of death.—*Lond. Med. Gaz.*, Feb. 1848.

42. *Death from Air entering a Vein divided whilst inserting a Seton in the Neck.*—An accident of this kind has recently occurred at Barnes, near London. No blame could be attached to the operator.

OPHTHALMOLOGY.

43. *Painful Affection of the Eye cured by the Extraction of a Tooth.*—Dr. EMMERICH relates a case of this kind. A man consulted him on account of a painful affection of one of his eyes, which had lasted for nearly fourteen years, and occasioned him great suffering. There was considerable vascularity of the conjunctiva and sclerotica, especially around the cornea, which structure itself was somewhat opaque and spotted. There was a continued flow of tears, with pain and intolerance of light. All these symptoms were greatly aggravated by any indiscretion in diet, and the use of the slightest stimulus, such as a single glass of wine. All kinds of remedies had been in vain tried, at different times, and the affection seemed incurable. On examining the upper jaw, Dr Emmerich found a carious molar tooth on the side corresponding to that of the affected eye; the portion of jaw around this tooth was painful, and very sensitive to the touch. The patient thought that the pain in his jaw had begun about the same time that the affection of the eye commenced. The tooth was drawn, and almost immediately afterwards the symptoms relating to the eye began to subside, and soon entirely disappeared. The suffering in the eye was evidently the result of sympathy between the second and third branches of the fifth pair of nerves.—*Dub. Med. Press*, April 19th, from *Henle and Pfeufer's Zeitschrift*, 1847.

44. *The Eye naturally adapted for Distant Vision.*—VOLKMANN and HUECK both agree in considering that, in its quiescent state, the eye is adapted to the vision of objects situated at the furthest point of distinct sight, and not, as has been generally supposed, of those situated about midway between this and the point of distinct vision nearest to the eye. In this case, therefore, in order to accommodate itself to the vision of an object placed at any distance within the furthest point of sight, the eye will require but one act, that, namely, of increasing its focal distance in proportion to the nearness of the object under view: no act will be requisite to adapt it to the perception of distant objects, for, in reverting to its state of rest, it at once resumes its capacity for distant vision, and retains it so long as its quiescent state continues. In proof of this opinion Volkmann observes that, in a state of rest, the axes of the eyes are directed towards a point even considerably beyond the most distant point of distinct vision, and that, since changes in the position of

the axes usually correspond with changes in the adaptation of the eyes, it is improbable that the meeting of the axes beyond the most distant point of vision should coincide with an adaptation of the eyes for an object on this side the point. According to Hueck, this view will also explain the distinct formation of the image of distant objects on the retina after death; as also the far-sightedness induced by the action of hyoscyamus and of belladonna.—*Lond. Med. Gaz.*, May 1848, from *Baly and Kirke's Recent Advances in Physiology.*

MIDWIFERY.

45. *Disorders of the Nervous System during Pregnancy.*—Dr. Lever, in an interesting paper on this subject in the fifth volume of *Guy's Hospital Reports*, lays down the following propositions as the results of his observation:—

1. That pregnancy is occasionally associated with chorea, or convulsive movements; with paralysis of various parts of the body, of the extremities, and of the nerves of special sense; and with mania.

2. That the varying symptoms of such complications may be produced at any period of pregnancy; but when produced, although modified by treatment, are rarely removed during the existence of gravidity.

3. That the patients in whom these complications exist, are women of a highly nervous temperament, of great irritability, or whose constitutional powers have been reduced by some long-continued but serious cause of exhaustion.

4. That in the treatment of such cases, heroic measures are not to be employed; that the curative means consist in improving the secretions, keeping the bowels free, and administering those medicines, and employing that diet, which will increase the tone and energy of the nervous system.

Lastly, That although, in most instances, the symptoms will continue as long as pregnancy exists; yet in the majority of cases we are not justified in inducing a premature evacuation of the uterine contents.

46. *Inflammation and Abscesses of the Uterine Appendages, (Ovaries, Fallopian Tubes, and Cellular Tissue.)* By Dr. Henry Bennett.—During the last thirty years, the subject of pelvic abscess, considered generally, has been much studied by French pathologists—by Menière, Andral, Grisolle, Marchal (de Calvi,) &c. In our own country it has received comparatively little attention, if we except the valuable articles of Dr. Doherty and Dr. Churchill, in the *Dublin Medical Journal*, and the recent article of Dr. Lever, in "*Guy's Hospital Reports.*" By all these authors this disease is considered as all but characteristic of the puerperal state, and as very seldom occurring under other circumstances. This, the universal view of the profession with respect to the pathology of inflammation and abscess of the uterine appendages, the author considers is very far from being a true interpretation of the facts. In reality, the disease is not at all uncommon in the non-puerperal state, only it is not recognized, being confounded either with acute metritis, chronic metritis, iliac abscess, or some other pelvic lesion. The principal difference that exists between the puerperal and non-puerperal forms of inflammation is the following:—In the former, owing, probably, to the increased quantity of fibrin contained in the blood, there is a great tendency to inflammation. Hence, if the structures contained in the lateral ligaments are attacked with inflammation, the tendency of the latter to invade the peritoneal folds themselves, and the surrounding tissues, gives rise to the formation of large pelvic inflammatory tumours, abdominal adhesions, and perforations, often ending in death. In the non-puerperal state, on the contrary, inflammation of the uterine appendages seldom extends to the peritoneum, and the purulent formations nearly always escape, in a latent manner, by the rectum or vagina. In this form of inflammation of the organs contained within the folds of the lateral ligaments, the element most frequently attacked is the cellular tissue which separates the peritoneal folds, and surrounds the ovaries, round ligaments, and Fallopian tubes. It may be produced by any cause which exaggerates the vitality of the uterine system. The author has seen it occur frequently from ulcerative diseases of the cervix, or from a severe fall.

The inflammatory tumefaction to which it gives rise may be attended with sufficient swelling to be recognized by pressure over the abdominal parietes; but an accurate diagnosis can only be formed by examination per vaginam. It may terminate by resolution, but more generally by suppuration, and the discharge of pus by the rectum, vagina or bladder, or by perforation of the abdominal parietes. When this takes place, however, the disease is not brought to a close, but during a longer or shorter period the patient continues to discharge pus in a latent manner, and to suffer from the symptoms of chronic uterine or pelvic disease. After giving this description of the disease in question, the author briefly alludes to the treatment, which, he observes, must be merely that of phlegmonous inflammation, carried out in accordance with the laws of therapeutics. The length of the paper precluded him from illustrating his account by cases, although he had seen many of great interest. He detailed, however, the heads of one which he had attended during the last year.

In the acute stage of inflammation of the lateral ligaments, the treatment ought to be the same as that adopted in phlegmonous inflammation generally. Only the necessity of resorting to active antiphlogistic measures—bleeding, leeches, cathartics, mercurials, &c.—was even more urgent than in the ordinary forms of phlegmonous disease, owing to the disastrous consequences that generally follow suppuration in this region. In acute metritis, also, the disease with which inflammation of the lateral ligaments in the non-puerperal form is the most frequently confounded, there is infinitely less tendency to suppuration, and it is not, consequently, of such paramount importance to overcome the inflammation within the first few days of its manifestation. Hence the great importance of an accurate diagnosis. When once we are acquainted with the real nature of the disease, we know what to expect, and can act accordingly. What he relied on the most, however, was the repeated application of leeches, within short intervals, on the abdominal parietes, just over the seat of the inflammation. In the acute stages, unfortunately, leeches could not well be applied internally, owing to the extreme sensibility of the vagina, and uterine system generally, which precluded the use of instruments. In the chronic stage, however, it became possible to use specula, and thus apply them internally. When this could be done, their application was attended with the greatest benefit. In this period of the disease, vaginal injections were often of great use; it was necessary, also, to enforce complete rest, and such general treatment should be adopted as was most calculated to strengthen the patient, and to improve the state of the economy in general.—*Proceedings of Royal Med. Chirurg. Soc.*, Jan. 26, in *Lond. Med. Gaz.*, Feb. 1848.

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47. *Post-Puerperal Metritis.* By MM. Chomel and Willemin.—Under this term M. Chomel has been long in the habit of describing a form of metritis, which does not manifest itself shortly after labour, as is the case with ordinary metritis, but at a period varying from eight to thirty days; the principal cause of its production being the resumption of the occupations of life prematurely, before the uterus has regained its normal volume. This organ becomes, under the influence of the metritis, much re-enlarged, while the os uteri is sensitive to the touch, tumid, irregular, and often lacerated. The treatment consists in baths and cataplasms, and laxatives in slight cases, bleeding where the pain and general symptoms require it, and afterwards local resolvents or exutories for the lessening the enlarged uterus.

Dr. Willemin has furnished a very good essay upon this subject. He prefers the term *simple idiopathic puerperal metritis*, inasmuch as it occasionally presents itself at a much earlier period than is understood by the term *post-puerperal;* but it is always quite distinct from that form of metritis connected with pyogenic disease. According to the analysis given of ten cases, it is shown that symptoms occurring in some of these may be wanting in others. Thus there are (1) cases in which pain, fever, and anormal volume are present. In others (2) there are pain and increased size, but no general reaction. 3. Neither pain nor fever is present, but there is anormal volume, with sanguinolent lochia, and, in some cases, deep laceration of the os uteri. 4. The rarest form occurs when there is absence of fever and enlargement, while there are pain and sanguinolent lochia. Any of these forms may, and frequently do, become complicated with inflammation of the surrounding cellular tissue of the pelvis, producing iliac phlegmon. The disease is generally, but not always, more acute in proportion as the time elapsed since the labour is short. The neck of the uterus is found to be changed in position, or not to have resumed its normal state; but the author has not observed the sensitiveness described by others. He is disposed to attach much importance to the deep *laceration* of this part observed in 4 out of 10 of his cases, and easily recognizable in one of them twenty days after labour. The sanguinolent character of the lochia is a symptom to be remarked, and when *iliac phlegmon* complicates the disease, it occurs usually on the right side only. Bleeding, linseed cataplasms, and emollient glysters relieve the acute symptoms; and local applications, with, above all things, rest, suffice for the subacute form. For the iliac phlegmon, M. Rayer employs with great advantage, first, a general bleeding and purgatives, and then a large flying blister. If fever persists, he repeats the bleeding, and covers the whole hypogastric region successively with blisters.—*Br. and Fr. Med. Chir. Rev.*, April 1848, from *Arch. Générales*, vols. xv. and xvi.

48. *Vomiting in Pregnancy.*—M. TROUSSEAU, in one of his recent clinical lectures, took the opportunity of stating the great advantage he had seen accrue from the mode of treating obstinate and dangerous vomiting during pregnancy, adopted some years since by M. Bretonneau. It first occurred to that practitioner, owing to the fact of his patient suffering from violent uterine pain, for the relief of which, believing the vomiting to depend upon its presence, he ordered a *belladonna* lotion to be applied to the hypogastric region, and with the effect of removing both the pain and the vomiting. In subsequent cases the remedy proved as efficacious, although no pain was felt; and he explained its operation upon the supposition that the vomiting was then sympathetic of irritation of certain of the nerves of the ganglionic system only, produced by the enlargement of the uterus. However this may be, many others have adopted the practice with like success.—*Ibid.*, from *Gazette des Hôpitaux*, No. 1, 1848.

49. *Intra-uterine Peritonitis in the Fœtus.*—Dr. SIMPSON showed to the Edinburgh Obstetrical Society (Feb. 9th), the body of a new-born infant which had died a few days before birth of acute peritonitis, as evidenced by quantities of coagulable lymph effused upon various parts of the surface of the peritoneum, and more particularly on the surfaces of the spleen and liver. Dr. Simpson stated that, 1st. Acute and fatal peritonitis appeared to be a very common inflammatory disease in the fœtus in the latter months of utero-gestation. 2d. A large number of fœtuses dying in the seventh and eighth month of utero-gestation, presented, as he had found on dissection, well-marked anatomical evidence of it, in the presence of effusions of coagulable lymph, adhesions between the folds of intestines, pus, &c. 3d. The child was sometimes, though rarely, born alive, and affected with it. 4th. Far more commonly the child is born dead, and the previous history of the mother shows that it had perished from one to three weeks before its expulsion, its movements having ceased about that time. 5th. Before the child's movements entirely ceased, the mother very generally remarks that its movements are morbid and excessive for fifty or sixty hours previously—probably during the currency of the fatal disease. 6th. Peritonitis is occasionally apt to recur in successive children in the same mother, and seems in some a result and remnant of the syphilitic poison in the parents. 7th. But in most cases its occurrence is independent of syphilis, and occasionally it will not attack successive children in the same mother, or even both children in cases of twins. In an essay on the disease, published some years ago in the Edinburgh *Medical and Surgical Journal*, vol. i. p. 392, Dr. Simpson had described a case of twins, in which one was born living and healthy; the other was dead, and within the abdomen were found all the usual appearances following intra-uterine peritonitis. Whilst intra-uterine peritonitis was very common, intra-uterine pleuritis was very rare; Dr. Simpson had only seen two well-marked cases of it in the fœtus.—*Monthly Journ. and Retrosp. Med. Sci.*, May 1848.

50. *Case of Double Cephalhæmatoma.*—Prof. SIMPSON showed to the Edinburgh Obstetrical Society, a child two weeks old, with a well-marked, large, and defined

cephalhæmatomatous swelling on each parietal bone, with the hard rim well marked at different points. He had never seen it on both sides except in this case. In this, as in most other cases, the tumours had not been observed till the first washing of the child, having come on, or at least grown greatly for some hours after birth. The effused blood was already becoming absorbed, and, by leaving the case entirely to nature, a cure would soon be effected. The effusion was between the skull and pericranium. He had watched various cases during the process of a natural cure, and he several times found that a layer of bone is formed on the inner surface of the separated pericranium, which can sometimes be distinctly felt after a time to crackle under the finger like parchment,—and, as the fluid gets absorbed, the two plates of bone gradually approximate and come together. Dr. S. believed that such cases were often mistaken and mistreated, by too active measures being employed. He had now had an opportunity of seeing a number of cases of cephalhæmatoma, and had never seen any treatment required but time and patience. The difficulty in their management generally, consisted in keeping the friends and others from doing something or other to them, when nothing, in reality, was required.—*Ibid.*, April 1848.

51. *Maternal and Infantile Mortality in the Dublin Lying-in Hospital.* By Dr. Clay.—The Dublin Lying-in Hospital was founded by Dr. Moss in 1757; from that period down to 1847, it has been under the charge of fourteen different physicians, or masters, as they are termed, who generally have held this important and lucrative appointment for seven years each. The following table shows the number of women delivered during each mastership, and the proportion of mothers and of children lost under the charge of the different successive physicians of the hospital. The per-centages present, says Dr. Clay, "an almost undeviating uniformity," eighty or ninety years ago the mortality under the two first masters, Dr. Moss and Sir Fielding Ould, being nearly precisely the same as since 1833 under the two last masters, Dr. Kennedy and Dr. Johnson.

Table of the Maternal and Infantile Mortality of the Dublin Lying-in Hospital, under different Masters.

Name of Master.	Number of Deliveries.	Number of Mothers lost.	Number of Children lost.
Dr. Moss, . .	915	14; or 1 in 65	46; or 1 in 20
Sir F. Ould, .	3,800	49; or 1 in 77	197; or 1 in 19
Dr. Cullum, .	4,724	65; or 1 in 73	258; or 1 in 18
Dr. Jebb, . .	5,903	63; or 1 in 93	269; or 1 in 22
Dr. Rock, . .	7,088	54; or 1 in 131	411; or 1 in 17
Dr. Clarke, .	10,787	124; or 1 in 87	580; or 1 in 19
Dr. Evory, .	11,357	86; or 1 in 132	600; or 1 in 19
Dr. Kelly, .	14,790	163; or 1 in 90	974; or 1 in 15
Dr. Hopkins,	18,727	217; or 1 in 86	1063; or 1 in 17
Dr. Labatt, .	21,867	309: or 1 in 70	1535; or 1 in 14
Dr. Pentland,	12,885	198; or 1 in 65	827; or 1 in 15
Dr. Collins, .	16,391	158; or 1 in 103	1017; or 1 in 16
Dr. Kennedy,	13,167	224; or 1 in 58	651; or 1 in 20
Dr. Johnson, .	13,699	179; or 1 in 76	863; or 1 in 16
Total, . .	156,100	1903; or 1 in 81	9291; or 1 in 17

The 156,100 women delivered in the hospital have given birth to 82,267 boys, and 76,169 girls, or the proportion of male to female births has been as 12 to 11; twins occurred 2400 times, or in the proportion of 1 in 65 of the deliveries; there were 32 triplet cases, and 1 case of quadruplets.

In the Registrar-General's returns we have the proportion of maternal deaths in childbed in England and Wales published from 1839 to 1842. During these four years 2,024,774 women were delivered, and 11,598 of them died. Hence, the proportion of mothers dying in childbed during these years in England and

Wales, was 1 in every 174 deliveries. It is, however, to be recollected, that always and everywhere the results of private practice are more favourable than those of hospital practice.—*Ibid.*, May 1848, from *British Record of Obstetric Med.*, for April 1848.

ANÆSTHETIC AGENTS.

52. *Varieties of Anæsthesia, &c.*—M. Beau, Physician to the Hôtel-Dieu, has been engaged lately in pursuing some investigations into the history of anæsthesia or loss of sensibility. The following abstract conveys some of the chief results arrived at by that physician. He first points out that anæsthesia itself has two forms; one, where the feeling of contact, as well as that of pain, is wanting; the other, where the sensation of pain only is wanting, the contact of any body being felt. The first of these two varieties affects only portions of the body, and is very rare; the latter is much more frequent, less grave, and although it may pervade the entire surface, yet oftener is more marked in the extremities, and especially in the arm and forearm. The anæsthesia of pain, moreover, is sometimes not limited to the skin, but extends to the mucous membrane, particularly to such portions of it as are normally endowed with high sensibility, such as those covering the eye, the nose, pharynx, &c.

Each of these varieties is met with in cases of poisoning from lead, and either in company or separately. When the two are conjoined, the case is more severe and of longer duration; when there is only loss of pain, recovery will happen, under proper treatment, in six days; but when with this there is also anæsthesia of touch, it is not until twelve or fifteen days have elapsed that the patient regains his healthy condition. The return of sensibility is the more rapid the less the duration of the malady, and the younger the patient. In considering the return of sensation, it must be borne in mind that the patient, though insensible to pain artificially produced, is highly sensitive to what, as opposed to that, may be called constitutional pain, such as colic and gouty pain.

That anæsthesia exists in the Protean-like disorder, hysteria, is known by experience to all practitioners. One patient will be sensible only to temperature, or appreciate the dryness or humidity of bodies; another will feel only their form, and be insensible to pain; the latter is by no means uncommon.

Hypochondriasis is another malady, in which, from the abnormal state of the nervous system, pain is unfelt, although the contact of bodies is perceived by the sentient surface.

The anæsthesia in hysteria and hypochondriasis may be attributed to the simply disordered condition of the nervous centres, whilst that in lead poisoning is connected with the direct action of the noxious mineral upon the nerve matter.

Examples of the loss of sensibility are further seen in delirium after accidents and operations, where the wounded parts seem to be moved about with impunity of suffering; also in certain forms of insanity; and lastly, in persons who have wrought their minds to a pitch of enthusiasm. But it is only in the three first-mentioned disorders that the occurrence of anæsthesia presents any constancy or regularity.—*Lancet*, May 20, 1848.

53. *Physiological Action of Chloroform.*—M. Amussat (*Comptes Rendus*, 29th Nov 1847), is of opinion that the insensibility or anæsthesia produced by the inhalation of ether, is due to an alteration in the qualities of the arterial blood, and that the degree of insensibility is in direct ratio to the extent of this alteration. In the details of the present series of experiments, he states that on immersing the beak of a pigeon in a vessel containing chloroform, the bird fell down in 55 seconds, and became insensible. On withdrawing the apparatus it speedily recovered, and in two minutes flew away. In another experiment, in which Simpson's apparatus was used, a pigeon became insensible in one minute, but was immediately restored on holding a flask of ammonia under its bill. On wrapping a cloth soaked in chloroform around a rabbit's mouth and nose, the animal became insensible in three minutes. In another similar experiment, insensibility was induced in

two minutes. In a third experiment, in which Simpson's apparatus was employed, insensibility resulted also in two minutes; the animal, indeed, was supposed to be dead, but the application of ammonia to its nose speedily restored it. In another experiment, the rabbit's head was placed in a glass vessel containing about 16 grains of chloroform at the bottom; free access of air between the sides of the glass and the animal's head was thus obtained. In two minutes the animal sank down, and insensibility speedily followed. On repeating this experiment with a double quantity of ether instead of chloroform, the animal sank down in three minutes; but the effects were much less powerful than with chloroform. Dogs became insensible in two minutes by inhaling chloroform from a sponge. In one experiment with a dog whose crural vessels and nerves were laid bare, the colour of the arterial blood became dark, like that of the vein, after one minute's inhalation; and insensibility then ensued. On stopping the inhalation, the vessels resumed their ordinary colour. In another experiment of the same kind, the arterial blood assumed a brown colour in 2½ minutes.

The observations which M. Amussat makes on cases in which chloroform was employed in the human subject are interesting only in so far as they demonstrate the more speedy production of complete insensibility by this fluid than in ether; and in showing that chloroform produces the same effect as ether on arterial blood, converting its colour and aspect into those of venous blood. He has never observed any injurious consequences to result from the employment of chloroform.

From experiments performed upon himself and upon many other individuals, M. GERDY* finds:—

1. That chloroform, like ether, produces cough; but that its employment is in this respect tolerated better than ether.

2. Applied to the nose and mouth by means of a sponge, it sometimes cauterizes the parts it touches; but this appears to depend on the chloroform being badly prepared. In such cases an inhaling apparatus should be employed instead of a sponge dipped in the liquid.

3. The sugary taste which it produces is most perceived towards the isthmus faucium, the base of the tongue, the velum and anterior arches of the palate, and in the pharynx. That the taste is perceived in the pharynx may be proved by inhaling the vapour only through the nose. The fact is physiologically interesting, in showing that the pharynx possesses the faculty of perceiving the flavour of chloroform when reduced to vapour. And it is so much the more remarkable, inasmuch as in its liquid state chloroform causes so much irritation when applied to the tongue that this organ is unable to perceive its taste.

4. Chloroform causes an increased flow of saliva, though in a less degree than ether.

5. Chloroform more readily produces an inclination to vomit than ether: the latter is, therefore, preferred by some individuals.

6. The numbness caused by chloroform often ensues more speedily than that produced by ether, though not invariably.

M. JOBERT† has furnished the details of cases in which this new anæsthetic agent was employed with complete success. In one case amputation was performed at the thigh for diseased knee-joint. Before commencing inhalation the pulse was 104, but when complete insensibility ensued (which it did in 1 minute 30 seconds), it fell to 72. No cough was excited by the inhalation, and respiration continued unimpeded during the continuance of the insensibility. The operation was performed without the least consciousness of pain, and at the conclusion of it, the patient roused up suddenly as from a profound sleep. The blood had lost somewhat of its ordinary bright tint, but was not so deeply coloured as is observed to be the case after the inhalation of ether. In another case the operation of cataract by depression was performed with equally satisfactory results; complete insensibility and unconsciousness having been induced. The other two cases, which were quite successful, contain nothing else worthy of note.

In an extract from a Memoir on the employment of Chloroform, M. SEDILLOT‡ mentions the effects produced by this fluid on three of his pupils and one of his colleagues. In one, all power of movement was lost in 1 minute 30 seconds; in another, in 2 minutes; in the third, in 5 minutes; and in the fourth, in 6 minutes. In each, consciousness of what was passing around, was retained. They also perceived when they were touched, but it seemed to them as if they were enveloped in a kind of atmosphere of insensibility towards pain. The power of motion and free exercise of the mind was not regained so speedily as after the inhalation of ether; the period being from 15 to 20 minutes in two of the individuals.

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* Comptes Rendus, p. 803. † Op. cit., p. 806. ‡ Loc. cit, p. 802.

In a subsequent memoir,* M. Sédillot remarks that more extended observations prove still more satisfactorily that chloroform, as Dr. Simpson says, possesses great advantages over ether, and will, most probably, quite replace it. The effects are usually more speedy in their onset, and more persistent in their duration. It is also employed with greater facility; the odour is agreeable to the patients; it produces no cough, or sense of heat in the chest. During the insensibility the patients usually snore as in ordinary sleep. The pulse and respiration are usually a little accelerated. Another advantage of this fluid over ether is, that it is not exposed to the risk of exploding, like ether, when used by candle or lamp-light.

More recently, some remarks have been published on the subject by M. Roux,† who speaks strongly in favour of this new agent for the alleviation of pain. He prefers sponge as the substance into which the chloroform for inhalation should be poured. He observes, that in all the cases he has seen, the anæsthesia was induced more speedily by chloroform than by ether. Complete insensibility ensued in from half a minute to a minute, or rather more. And there is economy of material as well as of time, for forty-six to sixty grains are usually sufficient for the purpose. In none of the cases which fell under his observation did the patients express any disrelish, or experience any of the symptoms of bronchial irritation which almost invariably attended the early inspirations of ether. In none was the state of insensibility accompanied by delirium or extraordinary hallucinations; neither was headache or any other uneasiness, which sometimes remains after the use of ether, ever complained of. Although the length of time during which the insensibility and anæsthesia continued varied in different cases, yet it would seem as if the duration of the effect was greater or less according as the impression was induced with less or greater rapidity. It is remarkable that when the patients awake out of the state of insensibility they do so at once, and not gradually. The patient does not always remain in a tranquil state when under the influence of chloroform, but is sometimes very restless; in one case it was almost impossible to restrain the movements of the patient so as to operate; occasionally they are exceedingly loquacious.

In allusion to the above observations of M. Roux, M. Velpeau‡ remarked that he had witnessed almost similar results from the employment of chloroform. In the experiments which he had witnessed, insensibility was induced by chloroform in from half a minute to 1, 2, 3, or more minutes; while ether usually requires from 5 to 10 minutes to produce its full effect; and the insensibility is less complete, and lasts for a shorter time with ether than with chloroform. M. Velpeau also recommends a sponge as the best apparatus for inhalation. During the same sitting of the Academy, M. Dumas also added his testimony to the efficacy of this new agent.

M. Boyer§ speaks of the advantages of employing chloroform in operations about the eye. Having operated for strabismus and cataract on several dogs while under the influence of it, he states that the eye during the whole time remained quite motionless.

M. Blanchet‖ remarks that, inasmuch as the colour of arterial blood is always more or less altered in persons or animals under the influence of the vapour of chloroform, it would be desirable, in cases where the inhalation has been carried too far, to act upon the kind of asphyxia produced, by the inhalation of a mixture of gases richer in oxygen than the air of the atmosphere is: he says that such a view is substantiated by the results of his experiments on animals.—*London Med. Gaz.*, Feb. 1848.

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* Comptes Rendus, 6 Décembre.

† Op. cit., 13 Décembre, p. 887.

‡ Loc. cit., p. 890.

§ Loc. cit., p. 903.

‖ Loc. cit., 20 Décembre.

54. *Narcotism from Inhalation of Vapours.*—Dr. Snow, in a paper read before the Westminster Medical Society, April 29th, 1848, related the result of a great number of experiments that he had performed on animals, for the purpose of determining the proportion of various vapours in the blood in the different stages of insensibility. He had ascertained that the quantity of vapour in the blood, necessary for causing any particular degree of narcotism, bore a constant relation to the quantity that the blood would dissolve, and that this relation was the same with respect to the different substances that he had examined, including chloroform, ether, bisulphuret of carbon, and others. For producing the second degree of narcotism, in which there were loss of consciousness, and impairment of voluntary motion, one fifty-sixth part of what the blood would dissolve was sufficient; and for producing the fourth degree, or that state in which all motion of the voluntary muscles was completely abolished, one twenty-eighth part was required. The experiments for determining these points consisted in ascertaining the smallest quantity of vapour, in proportion to the air, which would suffice to induce a given effect, and were performed in the following manner:—A small quantity of the liquid to be examined was weighed, and put into a very large glass jar, carefully closed, and when the vapour was equally diffused, a small animal—generally a bird or a mouse—was introduced, which was allowed to remain for a short time after the effects of the vapour had ceased to increase. At the point at which the effects became stationary, the tension of the vapour in the blood balanced the tension of that in the air in the lungs, at the temperature of the body, which being already known, the quantity in the blood could be calculated. The results obtained agreed with experience as to those vapours which had been administered to patients. Chloroform required about 288 parts of serum of the blood to dissolve it; and taking M. Valentin's calculation, that the human body contains, on an average, about twenty-six pounds of serum, it was found that twenty-four minims was the twenty-eighth part of the quantity the blood would take up—the quantity, consequently, for producing complete insensibility. When allowance was made for the vapour, which reached no further than the trachea, and was therefore not absorbed, this agreed with experience. The quantity of ether required was found by calculation to be considerably larger, on account of its much greater solubility; and these experiments showed the cause of the rule he had stated on another occasion, that the more soluble a volatile substance was, the greater was the quantity required to produce a given effect; and that, consequently, when the volatility was taken into account, the strength of this class of substances was in the inverse ratio of their solubility. He considered that the vapour of these substances did not become decomposed, or enter into any chemical combinations in the body, but produced its effect by its mere presence, impeding those combinations between the oxygen in the arterial blood and the nervous tissues, on which the functions of the nervous system depend.—*Lancet*, May 13, 1848.

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55. *Action of Chloroform on the System.*—Francis Sibson, Esq., in an interesting paper in the *London Med. Gaz.*, Feb. 1848, remarks:—"Chloroform, ether, and alcohol, are closely allied, both as anæsthetic agents and as narcotic poisons. In small repeated doses they produce agreeable exhilaration and pleasing hallucinations. A friend informs me that he has frequently produced, by merely inhaling chloroform from a bottle, the most delightful thrill over his whole frame. These narcotics, carried by the blood into every capillary, excite simultaneously every part of the frame. The action on the capillaries themselves is universal; they enlarge and are distended with blood, which now circulates through capillaries previously invisible. The conjunctiva becomes injected, and the lips and cheeks are turgid. The secretions are consequently increased, the eyes become watery, and saliva collects in the mouth; while the visible capillaries are turgid, the capillaries in the brain, the lungs, and other viscera, are turgid likewise.

"Turgidity of the capillaries is an effect characterizing the narcotic poisons. Alston observed this in frogs poisoned by opium. I dipped the limb of a frog into a watery infusion of opium; all the capillaries of the limb were soon injected with blood. Mr. Nunnely has noticed the remarkable reddening from the distension of the capillaries produced by prussic acid. Stramonium, hyoscyamus, and belladonna, often excite universal redness of the skin. The experiments of Mr. Wakley show that ether and chloroform cause distension of the capillaries in the lungs and other internal organs.

"The action of chloroform, ether, and alcohol, pervades the whole frame. In the first stage the excitability of every organ and fibre is exalted, but throughout, their marked action is upon the brain. Exhilaration is followed by excitement, excitement by cerebral disturbance. At this stage the person affected revels in the absurdities of social intoxication: consciousness still exists, but it is deranged. The mind is intent in its own way on many things, but does not now observe all personal realities. The mind often at this stage does not feel pain, simply because it is intently taken up with other things, just as a man in battle often does not feel a wound. This stage of deranged consciousness is also that of staggering intoxication, the muscular power and control being enfeebled, and sensation blunted.

"This stage of cerebral excitement and disturbance is speedily followed by the stage of cerebral sleep. There is unconsciousness, but not coma; the person sometimes can be roused, the eye turns up as in sleep, and the iris contracts. Now in all persons free from cerebral disease the pupils contract during sleep. I have opened the eyes of many sleepers, and, the brain being sound, I invariably found the pupils contracted. The sounder the sleep the smaller the pupil. In all persons the pupil dilates as soon as they awake, and if their sleep be sound the dilatation is gradual."

"Under the influence of ether and chloroform," he further observes, "the pupils first contract, then oscillate between contraction and dilatation, and finally dilate. So long as the pupil is contracted a dreamy state often exists, and the patient, when operated upon, frequently manifests an unremembered consciousness; he is, in fact, in the state of sopor. When the pupils dilate, and the iris is immoveable, consciousness is extinguished, and the patient is in the state of coma."

The stages of the increasing influence of chloroform, ether, and alcohol, are, according to Mr. Sibson:—

"Cerebral excitement.

"Cerebral derangement; staggering intoxication.

"Cerebral sleep (sopor); pupils contracted; dreams; reflex functions of brain and spinal marrow still active.

"Cerebral death (coma); reflex functions of medulla and spinal marrow still active.

"Death of spinal marrow; cessation of respiration (heart's action still generally present).

"Cessation of heart's action.

"It is very important to be able to tell easily when the stage of safety, sopor, is about to emerge into that of danger—coma. The action of the pupils is the key to this knowledge. Chloroformization ought not to be continued one instant after the pupils, previously contracted, have begun to dilate. If unconsciousness can be secured by sopor, the inhalation should not be carried on to produce coma.

"If complete muscular relaxation be sought for, as in hernia to facilitate taxis, in dislocation to make reduction easy, and in tetanus, then it will be needful in general to urge the patient from sopor into coma, but as soon as the muscular relaxation is secured the inhalation should cease.

"When chloroform or ether is employed in chorea, delirium tremens, or other affections, it should never be urged beyond sopor. In neuralgia it is not usually needful to produce unconsciousness. Whenever the pain disappears the inhalation ought to cease.

"Dr. Snow has made this important observation, that the effects of chloroform and ether increase after the administration of it has ceased: this he calls the cumulative property of those vapours. This increase of effect he has observed to last for twenty seconds. Mr. Wakley, in his experiments, observed the same thing. I observed this effect the other day in a woman whose lip was extensively pared under the influence of chloroform. I gave up the employment during sopor, the pupils being still contracted; and in a few seconds coma supervened, the pupils being permanently dilated.

"On this ground, Dr. Snow objects to rapid chloroformization. He conceives that the complete effect ought not to be gained in less than two minutes. I own I cannot see how a slow, but effective administration of the vapour, can lessen the danger arising from the still increasing effect after the administration has ceased. The longer the inhalation is continued, the greater the total amount of chloroform received into the system; and this chloroform, already circulating in the blood, will still, I conceive, under either circumstance of quick or slow inhalation, continue to produce an increased effect. Indeed, in the case in which I observed this action, the inhalation had been carried on with intermission some minutes. In another case, in which unconsciousness was produced quickly, the pupil, which had been dilated during one or two seconds, contracted immediately after the cessation of the inhalation.

"I think, with my friend Mr. Fearn, that it is important to dilute the chloroform vapour largely with air during the first few inhalations, so as to avoid the sudden shock on the nerves of the lungs, and accustom them to its presence."

56. *Mode of Administering Chloroform.*—Prof. SIMPSON states that he believes, in surgery the symptom most to be relied upon as indicating a thoroughly anæsthetic state, was slowness of respiration, or a degree of snoring, or stertorous breathing. After the appearance of this symptom, it is only needful to continue the inhalation, from time to time, by intermissions; and, by repeated applications of the handkerchief, the patient ought to be kept in the same sopor during the whole of the operation. In midwifery, Dr. S. believed that this deep degree of anæsthesia was, in ordinary circumstances, not required. He had found that, when administered so as to cause stertorous breathing, the uterine contractions generally ceased, and did not return till the effect had, in some degree, passed off. He had found, therefore, that the chloroform given in a surgical dose was very useful whenever he wished to stop the uterine contractions, as in cases where turning was necessary, and many other obstetric operations. In cases of natural labour, he generally began with a large dose of chloroform, so as to bring the woman at once completely under its influence. This mode of proceeding prevents the chance of any excitement; and, although it occasionally may stop the pains for a few minutes, especially if the labour is still in an early stage, yet the contractions recur as soon as the deeper state wears off, which it usually does in two or three minutes. The depth of the sopor is allowed to diminish by merely withholding the handkerchief till a pain comes on; and then the anæsthetic state is kept up by its reapplication, for two or three inspirations every four or five minutes; or what is better, with each succeeding pain. The patient should be kept unconscious, but not deeply so, till the head was passing the vulva, when a deeper anæsthesia was required.—*Proceedings of Edinburgh Obstetrical Society*, in *Monthly J. and R. Med. Sci.*, April 1848.

57. *Notes on the Anæsthetic Effects of Hydrocarbon, Nitrate of Ethyle, Benzin, Aldehyde, and Bisulphuret of Carbon.* By J. Y. SIMPSON, M. D.—*Chloride of Hydrocarbon*, or *Dutch liquid*, as it is often termed in consequence of it being first discovered by the Dutch chemists of the last century, is one of the various fluids to which the name of *chloric ether* was for some time given.

When equal parts of olefiant gas and chlorine are mixed together, the two gases rapidly disappear, and produce a colourless oily liquid, of a peculiar sweetish taste and ethereal odour. Its specific gravity is 1·247. It boils at 148°. It is composed of four atoms of carbon, four of hydrogen, and two of chlorine. Hence its formula is $C_4H_4Cl_2$.

When its vapour is inhaled, the chloride of hydrocarbon causes so great irritation of the throat, that few can persevere in breathing it for such a length of time as to induce anæsthesia. I have latterly, however, seen it inhaled perseveringly until this state, with all its usual phenomena, followed; and without excitement of the pulse, or subsequent headache. When I myself attempted to inhale the chloride of hydrocarbon, it produced an extreme degree of acrid irritation in the throat, which did not disappear entirely for many hours afterwards.

Nitrate of Ethyle.—When two parts of alcohol, and one part of pure nitric acid, are distilled together, with the addition of a small quantity of urea, *nitrate of ethyle*, or, more properly, *nitrate of oxide of ethyle*, is produced. It is a transparent colourless liquid, with a sweet taste, and very agreeable odour. Its specific gravity is 1·112; it boils at 185°. It is a compound of four proportions carbon, five of hydrogen, six of oxygen, and one of nitrogen; and its formula is, $(C_4H_5)\ O,NO_5$; or AcO,NO_5.

Nitrate of ethyle is easy and pleasant to inhale, and possesses very rapid and powerful anæsthetic properties. A small quantity, such as fifty or sixty drops, when sprinkled on a handkerchief and inhaled, produces insensibility after a few inspirations. But during the brief period which elapses before the state of complete anæsthesia is induced, the sensations of noise and fulness in the head are in general excessive; and much headache and giddiness have usually followed its employment, and persisted for some time.

Benzin or *benzole* was first discovered by Farraday, as one of the products in his experiments on compressing oil gas, and was designated by him *bicarburet of hydrogen.* Mitscherlich afterwards obtained it by distilling, at a high temperature, benzoic acid with an excess of slaked lime.

It is a clear colourless liquid, of a peculiar ethereal odour; with a specific gravity of 0·85; and boils at 186°. It is believed to be composed of two proportions of carbon and one of hydrogen. Its formula is, C_2H; or perhaps, more properly, $C_{12}H_6$. It is polymeric with the hypothetic radical formyle.

In my experiments with benzin I found it capable of producing anæsthesia; but the ringing and noises in the head accompanying and following its inhalation, were so excessive, and almost intolerable in the case of myself and others, as to seem to us to render its practical applications impossible, even had there been no other objections to its use. Latterly, Dr. Snow has tried its employment upon some patients for tooth-drawing; and in one instance of amputation. In this last case it produced convulsive tremors.—*Lancet*, Feb. 12, 1848.

Aldehyde, or hydrate of oxide of acetyle, was first noticed by Dœbereiner in distilling together sulphuric acid, alcohol, and peroxide of manganese; but it was left for Liebig to fix and determine everything about its chemical nature. It is a colourless limpid liquid, of specific gravity 0·791. It is very volatile, boiling at 72°. It spontaneously changes when long kept, and is converted into two substances, a solid and a fluid, metaldehyde and elaldehyde. Liebig found it to be composed of four atoms of carbon, four atoms of hydrogen, and two of oxygen; and its formula is C_4H_3O+aq.

Professor Poggiale, of Paris, has lately made some experiments with dogs on the inhalation of the vapour of aldehyde, and from these has concluded that its anæsthetic effects will be found more prompt and energetic than those of sulphuric ether or chloroform. It certainly possesses, like some of the preceding agents, well-marked anæsthetic properties; but it assuredly will never come into use, as very few will be found capable of inhaling a sufficient dose of its vapour. In fact, out of five of us that attempted to inhale aldehyde, very carefully prepared and purified, four were driven to suspend the respiration of it in consequence of the coughing and insufferable feelings of dyspnœa which it immediately induced. The sensations of difficult respiration and constriction in the chest which the vapour produced, resembled precisely those of a severe fit of spasmodic asthma. In the fifth case, the experimentalist, after perseveringly breathing the aldehyde for a minute or two, became entirely insensible; the state of anæsthesia lasted for two or three minutes; during it, the pulse became excessively small and feeble. On recovering, the bronchial constriction and coughing, which had disappeared as the anæsthesia was induced, returned immediately, and was annoying for some time.

Bisulphuret of carbon, or *alcohol of sulphur* (as it was at first termed), was accidentally discovered in 1796 by Lampadius, when experimenting on iron pyrites. Different opinions of its composition were held by different chemists; but Berzelius and Marcet, in 1813, at last fully confirmed the previous idea of Clement and Desormes, Vauquelin, &c., that it consisted only of sulphur and carbon. It is composed of two atoms of the former to one of the latter; consequently its formula is CS_2.

The most easy method of procuring it is by transmitting the vapour of sulphur over fragments of charcoal heated to redness in a closed porcelain or iron tube. The resulting bisulphuret of carbon, when purified by distillation, is a clear, colourless liquid, of a pungent taste. Its specific gravity is 1·272. It is very volatile, boiling at 108°.

It has been stated in various literary journals, that bisulphuret of carbon has lately been used as an anæsthetic agent at Christiana; but no particulars regarding its employment in Norway have, as far as I know, been yet published.

I have breathed the vapour of bisulphuret of carbon, and exhibited it to about twenty other individuals, and it is certainly a very rapid and powerful anæsthetic. One or two stated that they found it even more pleasant than chloroform; but in several it produced depressing and disagreeable visions, and was followed for some hours by headache and giddiness, even when given only in small doses. In one instance I exhibited it, with Mr. Miller's permission, to a patient, from whom he removed a tumour of the mamma. It very speedily produced a full anæsthetic effect; but it was difficult to regulate it during the operation. The patient was restless in the latter part of it; but felt nothing. Like several others when under it, her eyes remained wide open. After the operation she was extremely sick, with much and long-continued headache; and, for fifty or sixty hours subsequently, her pulse was high and rapid, without rigor or symptoms of fever.

I tried its effects in a case of midwifery, in presence of Dr. Weir, Dr. Duncan, Mr. Norris, and a number of the pupils of the Maternity Hospital. It was employed at intervals during three quarters of an hour. The patient was easily brought under its influence, a few inspirations sufficing for that purpose; but it was found altogether impossible to produce by it the kind of continuous sleep attending the use of chloroform. Its action was so strong, that when given, as a pain threatened or commenced, it immediately affected the power of the uterine contractions, so as often to suspend them; and yet its effects were so transient that the state of anæsthesia had generally passed off within a minute or two afterwards. The patient anxiously asked for it at the commencement of each pain. During its use she was occasionally sick, and vomited several times. Latterly her respiration became rapid, and her pulse rose extremely high. I then changed the inhalation for chloroform, and, under it, the patient slept quietly on for twenty minutes, when the child was born. During these twenty minutes there was no more sickness or vomiting, and the pulse gradually sunk down to its natural standard; and a few minutes after the child was expelled, and while the mother still slept, her pulse was counted at 80. Next day the mother and infant were both well, and she has made a good recovery.

While these experiments prove the strong anæsthetic properties of bisulphuret of carbon, they at the same time show its disadvantages. I have not alluded to another strong drawback upon its use, viz., its very unpleasant odour. "It has (says Dr. Gregory) a peculiarly offensive smell of putrid cabbage."—(*Outlines of Chemistry*, p. 130.) By dissolving various essential oils in the bisulphuret I tried to overcome this disagreeable defect, but without much success.

None of the five anæsthetics which I have mentioned in the present communication are, I believe, comparable with chloroform or sulphuric ether, either in their manageableness or in their effects. And the after consequences which all of them tend to leave, are too severe and too frequent to admit of their introduction into practice. They are more interesting physiologically than therapeutically. —*Month. Journ. and Ret. of the Med. Sciences*, April 1848.

58. *Reckless Employment of Chloroform in a case of Delirium Tremens.*—[The following case affords an example of the reckless use of chloroform which can hardly be too strongly reprobated. The patient fortunately escaped. Had the result been different, and the case been submitted to a jury of intelligent men, they would, we conceive, have had little difficulty as to a verdict.]

The patient was labouring under a third attack of the disease, and as he had been cured in the two previous instances with opium and morphia, the narrator states, "I had recourse to the same at this time also, and I almost night and day, for two days and two nights, continued giving him small repeated doses, and increasing it as much as I durst venture. There was no appearance of sleep for nearly three days and nights, but all the symptoms were aggravated. He became quite unmanageable, and required two or three persons to keep him in bed. The whole body, especially the hands, were in a constant tremor; cold clammy sweats bedewed his skin, and the phantoms which assembled around his bed to disturb his rest were innumerable. As he had occasionally slight convulsive fits, I was afraid to go on any further with the opium. I determined to try the chloroform, although I did not consider him a very good subject for it. I procured an ounce from a large medical establishment in the city, where I was sure I would get it genuine.

"I began by pouring ten to twenty drops on a handkerchief, and holding it over his mouth and nose, and always renewing it when required. He became furious after breathing it about two minutes, and struck and attempted to bite me, when I was obliged to desist until I got his hands secured, and a strong man in the bed to secure him. I then went on for nearly half an hour, always pouring on a little more occasionally, and he talking incessantly, and endeavouring to disentangle himself and get up. At last he began to snore occasionally for a minute, his eyes became fixed and staring, the pupils much contracted; slight convulsions came on, and began to increase to such a degree that I was obliged to take the handkerchief from his face, and allow him to breathe the free air. He soon recovered, and began again to get furious. I was anxious to persevere as long as I could with safety. I repeated the drops, and applied chloroform again; and, when nearly a whole hour had elapsed, and my hand scarcely three minutes from his face, holding the handkerchief the whole time, the convulsions commenced again, and colliquative sweats were now pouring over his face, which was quite cold to the feel. I got alarmed, and gave up the experiment. During the hour he had inhaled rather more than ℥vi. of the chloroform. He soon recovered from the bad symptoms, but it was now late in the evening, and my patience was exhausted. I therefore thought I would leave him until the morning. There remained in the bottle rather more than a drachm of the chloroform. I told his keeper just to put a few drops on the handkerchief occasionally, and keep it to his nose until he got it all. I called in the morning: he had become very quiet and dull after I left him, and a few hours afterwards had fallen sound asleep. He was sleeping when I called. I felt his pulse, but did not wake him: his pulse was good, 72. On the next morning I found that he had slept well, and he asked me whether it was the opium or the chloroform which had set him asleep. He recovered very rapidly, and was soon able to resume his usual avocations."—*Lond. Med. Gaz.*, March 1848.

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59. *Use of Chloroform in Tetanus.*—Mr. R. L. Baker (*Prov. Med. and Surg. Journ.*, May 31) administered chloroform in a case of tetanus supervening on the fifth day after an injury of a finger, in which the first phalanx was torn off. The spasms were relaxed under the effects of the remedy, which was kept up for three quarters of an hour. The patient continued to improve for eight days, at the end of which, as there was a threatening of return of the tetanic symptoms, Mr. B. amputated the finger, and the patient at the date of the report was rapidly recovering.

Dr. C. A. Worthington of Lowestoft, relates (*Prov. Med. and Surg. Journ.*, April 19) a case of acute traumatic tetanus in a boy 17 years of age, in which the chloroform was administered with striking relief. But the spasms returned and the case terminated fatally, though the remedy was industriously persevered in.

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60. *Chloroform in Neuralgia.*—Mr. Sibson relates (*Lond. Med. Gaz.*, March 31, 1848) six cases of facial neuralgia, in which he administered chloroform. In five, pain speedily gave way, but in two unpleasant effects were produced. In one, sickness, giddiness, and some headache: in the other there was great aggravation of headache, deafness, increased cough, &c.

Mr. Moffit has also used it (*Lond. Med. Gaz.*) twice in a case of severe neuralgia of the neck, and on both occasions it brought on severe hysterial fits and vomiting to a great degree, which made it necessary to desist. The pain was not in the least relieved, and the patient felt worse in every respect for several days.

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61. *Chloroform in Dysmenorrhœa.*—Dr. J. Henry Bennet (*Lancet*, Feb. 19, 1848) states, that he has found the chloroform a valuable therapeutic agent in dysmenorrhœa.

[In one case of very severe and intractable dysmenorrhœa in which its use was resorted to at our suggestion, it produced such distressing effects that the practitioner who administered it could not be tempted, he informs us, to try it again.]

62. *Chloroform in Midwifery Practice.*—Dr. Nevins, in a paper read before the Liverpool Medical Society, states that he has reports of about eighty cases of labour under the influence of this agent, the general result of which was highly favourable. No case of death has reached him in which this termination could be attributed with any fairness to it. One woman had died of puerperal fever on the third day after its employment, and a second patient had also died about the same date with sloughing of the os uteri and interior of the uterus, after the application of the short forceps; but he had ascertained that at the same time one or two cases of puerperal fever had occurred in the practice of surgeons who had used chloroform, and erysipelas was also prevalent in the town at the same time. Now it has been often observed, that when the latter disease is prevalent, cases of puerperal fever were also met with; and there was, therefore, no presumption that the occurrence of the fever had any connection with the employment of the chloroform. Another patient had been affected with œdema of the epiglottis, commencing about twenty-four hours after labour, in which she had cried out a good deal prior to the exhibition of the chloroform, but not so much as many women in ordinary labour. Here, then, a presumption might arise that the œdema was owing to the inhalation, but further experience was necessary to confirm or disprove it. Another patient began to rave violently after the inhalation, but she had been previously much excited by the number of persons around her, (students and others,) who had questioned her frequently while preparing for its administration, and when just beginning to be under its influence: she ultimately did well. Another young woman with her first child, to whom ether was given, which was afterwards ascertained not to have been of the full strength, had severe convulsions, beginning about ten hours after labour was completed. By bleeding and the common treatment she was cured in the ordinary length of time.

With these exceptions, no untoward circumstances had occurred after the use of the chloroform; and it was evident that any connection, except that of time, between some of these and its employment was very doubtful.

The general description of the labours was, that the patients accomplished them in the usual time, but without the fatigue of ordinary parturition, and that they were entirely free from the exhaustion so commonly experienced afterwards: they expressed themselves as if the labour had scarcely been of any consequence, and the recoveries, with the above exceptions, were all described as "unusually quick and favourable." In many, perhaps most cases, the after-pains were decidedly less than usual, or than they had been in previous labours. In several, however, they were as severe as usual, in none more so. If administered prior to the dilatation of the os uteri, no particular effect was noticed upon it; but when the vagina was hot, dry, and swollen, as in some of the cases, it generally became soft and moist almost immediately. In about one-third of the cases the uterine contractions were decidedly enfeebled, and the intervals lengthened; but so much relaxation of the soft passages was produced at the same time, that, with one or two exceptions, the labour was not reported as having been prolonged beyond what might have been anticipated had chloroform not been used. In nearly every instance the abdominal muscles acted in concert with each uterine contraction, and the legs were generally stretched out at the same time, and the patients often uttered a low moan during each pain, but without being subsequently conscious of having suffered. In many cases they were aware of the passage of the child's head over the perineum, but it was unaccompanied with pain. The placenta was expelled as usual, and there was less hemorrhage than common in most of the reports; our experience, therefore, is so far decidedly in favour of the safety and utility of its employment. In one case it was continued at intervals for sixteen hours and a half, in another for eleven and a half, and in others for varying periods down to ten minutes, just during the passage of the head over the perineum.—*Lond. Med. Gaz.*, March 1848.

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63. *Injurious Effects of Chloroform.*—Dr. Nevins, in a paper read before the Liverpool Medical Society, on the 3d of Feb. last, "on the present state of our knowledge with respect to the use and effects of chloroform," states that he has received private communications up to that date from several of the London hospitals, from Edinburgh, the Liverpool hospitals, and from Leeds and Birmingham,

the York Lunatic Asylum and Retreat, the Wakefield Asylum, Dr. Conolly, Dr. Churchill, and other private sources, besides the cases recorded in the public journals; and, from the candid tone of the letters, and the particulars contained in them, he thought the Society might consider itself in possession of the unfavourable effects and results of this agent, as well as its favourable ones. He should, however, chiefly dwell upon the former, as they were the most important at present towards obtaining a full knowledge of its properties; the reports in the journals having fully proved that it may be advantageously administered in many instances, and having confirmed the utility of its employment in most of the cases in which ether has hitherto been used.

Vomiting.—Amongst the immediate effects produced by its administration, vomiting was frequently present. It often seemed dependent upon the food having been recently taken; but in several instances neither food nor drink had been swallowed for several hours previously. It was, however, very important to attend to this particular, as in several cases chloroform had produced no effect whatever when inhaled even in large quantities immediately after a full meal.

Headache was another not unfrequent result, though the contrary had often been stated. In some cases this continued for several hours, and in one instance it had not entirely disappeared after some days. It was principally, if not entirely, confined to the forehead.

Convulsions were very frequent, and he used the term "very" advisedly, because they had been often reported to him. In one or two reports it was said, "Nearly all the patients operated upon were more or less convulsed;" and in some instances this had rendered the operation almost impracticable. In a case of tying the brachial artery, the muscles of the arm were so violently affected that the vessel could scarcely be gained, and the accompanying veins were so swollen and turgid as to obscure it even when exposed—rendering the operation very unsatisfactory. In another case—an operation upon the perinæum—the urethra and other parts were so forcibly and suddenly retracted several times as to remove them from the control of the operator; and in a third case—one of lithotomy—it required the vigorous efforts of four persons to hold the patient on the table even after being tied up in the proper position. Several other cases had been mentioned; and, though he could not give an accurate statistical report, he thought about one patient in six or eight was affected with them more or less severely. In many cases they were accompanied by frothing at the mouth, whilst in others they resembled common hysterical symptoms. One important caution to be learnt from this was, never to attempt any operation more severe than tooth-drawing without having an assistant at hand. He had lately been prevented from completing an operation satisfactorily, by the patient starting up in the middle of it, in a state of excitement almost resembling that produced by laughing-gas, and, before he could be replaced on the sofa, the effects of the chloroform had quite gone off, and the operation was finished whilst the patient was conscious. He was not aware that he had started up or exhibited any degree of violence. It was sometimes supposed that convulsions only occurred before the full effect of the chloroform had been produced; but in many of the reports it was distinctly specified that "the patient was fully under its influence," and this had been the case in his own instance. It was fortunate, however, that these convulsions scarcely ever commenced *during* the operation: they were always manifested as soon as the agent began to take effect, if they were present at all; and therefore a surgeon was not liable to be betrayed into commencing an operation during their absence, and being interrupted by their subsequent appearance. If they were so severe as to interfere with the operation, he had nothing to do but to wait till the effects of the chloroform had gone off, and then his patient was in no less favourable a state than if he had simply not known of or used that agent; and he might remark, that not a single instance had been reported to him, or publicly recorded, in which any permanently injurious effects had resulted from these convulsions. Except as a matter of inconvenience, the clenching of the teeth often observed prior to tooth-drawing did not deserve particular notice.

Depression or Prostration.—This was generally produced, more or less, and sometimes to an alarming degree, though hitherto no fatal issue had been traced to the employment of chloroform. It generally diminished the number of pulsations, and in one or two instances both the heart and lungs had almost ceased to act, and fears were entertained that the patients would die under the operation, but they had rallied, and had all done well ultimately. In most cases the reports stated that reaction had been perfect in from ten minutes to two hours; and, so far as our present knowledge extended, the depression produced was not of an alarming or dangerous nature. In one or two cases, indeed, in which the patients were reported to have been at death's door, and pulseless, from uterine hemorrhage, or prostration otherwise induced, they rallied under the influence of the chloroform, and the operations were safely performed, though ordinary stimulants had been previously tried in vain.

Secondary Hemorrhage.—One of the reports says that the writer fancies there has been a greater disposition to secondary hemorrhage than in cases in which chloroform has not been used; but he is the only observer who has noticed this. The reports generally made are, "Very trifling hemorrhage," "No secondary hemorrhage," &c., and in the midwifery cases this was very striking. In several instances in which there was previously a disposition to flooding, there was none when chloroform was used; or without any previous flooding of a serious character, the reports state—"Very little discharge," or "Less hemorrhage than usual." The result of experience thus far is therefore in favour of this agent, as regards this particular effect.

Excoriation of the lips and nose had generally been stated to be caused by using an impure specimen; but it had also been observed in so many cases in which every care had been taken to have pure chloroform, that it must be considered as an effect of the agent itself. It may, however, be prevented by taking care to avoid direct contact.

Several cases of death at periods varying from twenty-four hours to two or three days, were mentioned in the reports from which Dr. Nevins derived his information; but unfortunately they were nearly all cases of operation for hernia, or upon the abdomen in some way, and peritoneal symptoms had been chiefly sought for, whilst the state of the brain was not once alluded to, and that of the lungs very slightly in only one or two, and in these no mention was made of great congestion. In one respect the experiments of Mr. Gore were particularly interesting in their bearing upon midwifery. He killed a rabbit which was nearly at the full period of utero-gestation, by the repeated inhalation of chloroform vapour, and then extracted six young ones from the uterus of the mother, which all lived for several minutes. Dr. Nevins had been struck by the few cases of still-born children in the midwifery reports sent to him. He had the particulars of about eighty cases of labour in which chloroform or ether was administered for periods varying from ten minutes to sixteen hours and a half, of which eighteen were cases requiring turning or instrumental assistance. Six children only were still-born; of these, two had undergone craniotomy; one was a funis presentation; one was turned for placenta prævia; and the other two were restored by appropriate treatment. In fact, it appeared as if the child had a better chance of life after the employment of chloroform than without it, as it was usual to have a greater number of still-born children with such cases as had been reported.

From the experiments of Mr. Gruby, it appeared that the uninterrupted inhalation of chloroform for from three to five minutes caused death in several of the animals experimented upon, whilst similar animals breathed the vapour for upwards of an hour and a half, without injury, if occasional draughts of unmixed atmospheric air were interposed; from which the important inference might be drawn, that we ought, in every case of its administration, to remove the sponge occasionally, and allow the patient to inspire pure air alone.

The statement that the vitality of the blood was impaired by anæsthetic agents was not borne out by facts; for in Dr. Snow's report of ether cases he says the blood coagulated firmly in every case, and the jets of blood from divided arteries had the usual vermilion colour. This was observed in many of the reported cases, whilst in one or two the colour was said to be "perhaps not quite so light as usual, but the venous blood was not so dark:" and in a rabbit killed by chloroform, Mr. Gore found that the blood drawn from the jugular and crural veins just before death, coagulated quickly and firmly.—*Lond. Med. Gaz.*, March, 1848.

64. *Injurious Effects of Chloroform in Midwifery Practice.*—Dr. Reed, during the discussion of a paper read by Mr. Brown before the Westminster Med. Society, on the use of chloroform, said:—"He was sorry that only favourable cases in which chloroform had been used had been published. No doubt it produced good effects in some cases, in others bad effects. In one institution in London it had been employed in all cases. In one instance a strong, healthy woman, the mother of several children, had been seized with hemiplegia six or seven days after the use of chloroform. It had been noticed, too, that there had been more still-born children since the use of chloroform than previously. Some of these presented a peculiar state of the fluids: fluid had been extravasated under the skin. An eminent physician who had visited the institution to see the effects of chloroform, had been prejudiced against it; the child in this case was born in a 'tipsy state.' Though no such cases were published, yet in private we were hearing often of the unfavourable effects of chloroform. Thus in one case in which the patient had been in labour for forty-eight hours, she was kept under the influence of chloroform for twenty-eight hours—the child was still-born. In another case it was given for neuralgia to a lady lately delivered, and it proved fatal. What was the experience of members of its unfavourable effects? In difficult and turning cases he should always himself give chloroform, but not in natural cases, unless there was some good reason for its use."—*Lancet*, April 29, 1848.

65. *Violent Convulsive Movement caused by chloroform administered to a Patient in labour.*—Mr. Kay stated to the Liverpool Medical Society, (Feb. 3) that he had tried chloroform in one case of midwifery requiring the application of the short forceps. The patient's convulsive movements were so violent, that he was obliged to wait until the effects of the chloroform had gone off, before he could apply them. —*Ibid.*

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66. *Life Insurance.*—In the *Americal Journal of Medical Sciences*, N.S., Vol. XI. p. 253, we stated the particulars of the case of Schwabe *v.* Clift, and the verdict of the jury. It would seem that this verdict has been set aside. The following account is given in a recent Law Periodical.

"*A.* effected a policy on his own life, subject amongst others to the following conditions: that the policy should become void, if the assured should die on the high seas, or should go beyond the limits of Europe, or enter the military or naval service, except with the permission of the assurers, and that 'every policy effected by a person on his own life should be void, if such person should commit suicide or die by duelling, or the hands of justice.' *A.* died in consequence of having voluntarily, and for the purpose of killing himself, taken sulphuric acid, but under circumstances tending to show that he was at the time of unsound mind. In an action by the administratrix of *A.*, upon the policy, the defendants pleaded that *A.* committed suicide, whereby the policy became void, and at the trial, the judge directed the jury, that in order to find the issue for the defendants, it was necessary that the jury should be satisfied that *A.* died by his own voluntary act, being then able to distinguish between right and wrong, and to appreciate the nature and quality of the act that he was doing, so as to be a responsible moral agent; that the burden of proof, as to his dying by his own voluntary act, was on the defendants; but that being established, the jury must assume that he was of sane mind, and a responsible moral agent, unless the contrary should appear in evidence. Held, upon a bill of exceptions, that this direction was erroneous, for that the terms of the condition included all acts of voluntary self-destruction, and therefore, if *A.* voluntary killed himself, it was immaterial whether he was, or was not, at the time, a responsible moral agent."—*Law Magazine, No.* 78.

T. R. B.

67. *On the Existence of several Metals in the Human Blood.*—Mr. E. Millon has addressed to the Academy of Sciences a memoir on the normal presence of many

metals in the human blood, and an analysis of the fixed salts contained in that liquid.

Upon receiving the blood issuing from a vein, in about three times its volume of water, and introducing it after this direction into a jar of gaseous chlorine, it is seen to coagulate, becomes of a brown colour, and soon after forms a gray amorphous mass, in which the organization of the red particles entirely disappears. When it is thrown upon a cloth and pressed, a liquid flows from it, which filters rapidly and remains liquid.

If this reaction be minutely examined, we find a peculiar separation of the elements of the blood. The organic substances are found almost wholly in the coagulated portion, while, on the contrary, all the saline principles are collected in the liquid. This separation is so perfect, that when the coagulum is first washed and afterwards burnt, it is destroyed without leaving any residue. On the other hand, the liquid evaporated to dryness, and burned in the organic analysis tube, yields so little carbonic acid, that it cannot be estimated at more than one per cent. of the organic matters of the blood, which chlorine does not coagulate.

It is easy to convince ourselves that the coagulum furnished by the organic principles does not contain the fixed salts of the blood, and does not condense them, but contains such a quantity only as is proportional to the quantity of the water with which it is impregnated, so that if we weigh the water in which we received the blood, and weigh it again after mixture with the blood, we may act upon a known weight of filtered liquid, as upon a determinate quantity of the blood. This liquid accommodates itself so well to all analytic researches, both as to quantity and quality, that we can immediately discover the quantity of one or other of the fixed salts of the blood. To give some idea of this rapidity, two or three minutes are sufficient to obtain from the blood even the iron which it contains in a state of limpid solution, in which all the reactions of this metal are discoverable.

This method is, in fact, an analysis of the fixed salts of the blood in the hurried way, and cannot fail to be advantageously applied to other tissues, and to other liquids of the animal economy, added to which, the most repulsive organic matters are by the action of chlorine converted into common saline solutions.

The facility of isolating the saline portion of the blood, leads to other results well worthy of notice. M. Millon states that he has proved that the blood of man constantly contains silex, manganese, lead and copper. The proportion of silex and of the metals is sufficient to prevent the necessity of any peculiar modification of the analysis. After evaporating to dryness the liquor left after the action of the chlorine, the residue is to be calcined for a short time, to get rid of the small quantity of organic matter, which the chlorine has not rendered insoluble. The insoluble portion of the ashes is then to be treated as a mineral, in which we find silex, manganese, lead and copper. It is found that 100 parts of the insoluble residue of the ashes of the blood yields

Silica	from	1	to	3	parts
Lead	"	1	to	5	"
Copper	"	0·5	to	2·5	"
Manganese	"	10	to	24	"

After this determination, so easily effected, it becomes a subject of curious inquiry whether the copper and the lead are disseminated through the whole mass of the blood, or if, as happens with iron, they are confined to the red particles.

Experience has left no doubt on this subject. One kilogramme of the clot, carefully separated from the serum of many bleedings, yielded 0·083 gr. of lead and copper; one kilogramme of serum separated from the preceding clot, yielded only 0·003 gr. of these two metals, and M. Millon thinks that these three millegrammes of lead and copper contained in the serum, ought undoubtedly to be attributed to the red globules, dissolved or suspended in the lymph.

It appears then, that the copper and the lead are not diffused throughout the blood, but are fixed with the iron in the globules; and everything leads to the conclusion that they contribute, as it does, to organization and to life. Do they exert a decided influence on the health? Does chlorosis exist on account of deficiency of copper, lead and manganese? or is there excess, the secret cause of any obscure and disordered affection? Therapeutics ought to answer these questions and enlighten us in its turn. Legal medicine will, on its part, perhaps draw up useful hints as to the permanent presence of these metallic poisons, and with respect to their enormous variations, even in the midst of life.—*London, Edinburgh and Dublin Philosophical Magazine*, from the *Comptes Rendus*, Jan. 10, 1848.

T. R. B.

68. *Progress of Putrefaction, &c.*—When we consider that decomposition had proceeded with such rapidity after death, as to render premature interment necessary, it is highly improbable that, after a lapse of two years and four months, the corpse of Cromwell should have been in such a state of preservation, as to admit of its being suspended from the gallows in the manner described by the journals of the day. Orfila, who has bestowed much attention on the subject of decomposition, found that, in a majority of cases, bodies were reduced to skeletons, at the end of fourteen, fifteen, or at the utmost eighteen months, even when buried in coffins and wrapped in clothes, and thus when no unusual sign of putrefaction had appeared before interment. The greater the decomposition before interment, the more speedy would be the destruction of the soft parts and dissolution of the ligaments. A body buried in a gravelly soil, such as that upon which Westminster Abbey stands, would, under ordinary circumstances, undergo changes more slowly than if placed in a damp and rich soil, but it may be doubted whether such a locality would much retard the dissolution of bodies, in which the putrefactive process had set in immediately after death and made great progress. From inquiries of the Clerk of the Works at the Abbey, we find it uncertain how long bodies lie there without becoming skeletons, as only one has been seen for many years, and that had been buried about sixteen years—it was a perfect skeleton.

On a trial that took place in Edinburgh some years ago, Dr. Barclay, the celebrated anatomist, stated, that the longest time he ever knew, during which the features were recognizable, was a fortnight.—*Cooper on the Disease and Death of Oliver Cromwell* in *Dublin Quarterly Journal of Medical Science*, May 1848.

T. R. B.

69. *On Transparent and Opake Arsenious Acid.* By M. Bussy.—It is well known that arsenious acid exists in the different states above mentioned, and also that the transparent variety becomes opake; it has been stated that the former is less soluble in water than the latter. By performing experiments to determine this point, M. Bussy has arrived at the following conclusions. 1. That the transparent acid, far from being less soluble than the opake, as stated by several chemists, is on the contrary, much more so: the difference is nearly as three to one, at the temperature of about 55° F.; thus a litre of water which dissolves forty grammes of the transparent acid dissolves only twelve to thirteen grammes of the opake. 2. That the transparent acid dissolves much more rapidly than the opake. 3. That neither of these acids possesses a perfectly constant degree of solubility. 4. That the opake is converted into the transparent, by long-continued boiling in water; that is to say, it acquires the same degree of solubility as the transparent acid, which is such, that one hundred grammes of acid dissolve in a litre of water at 212°. 5. That under the influence of water and a low temperature, the transparent is converted into the opake acid. 6. That the mixture of the two varieties of acid in the same solution explains the anomalies observed in the solubility of arsenious acid. 7. That division which facilitates the solution of the opake arsenious acid, without increasing its solubility, considerably diminishes that of the transparent acid, and to such an extent, that the latter reduced to fine powder and levigated, is not sensibly more soluble in the cold than the opake acid; this effect undoubtedly results from a transformation which it undergoes, either at the moment of pulverizing, or of its contact with water. 8. That the acid which has become opake by the slow transformation of the transparent, by the action of ammonia, and the acid crystallized in water, are similarly acted upon by water and appear to belong to the same variety. 9. That under the influence of dilute hydrochloric acid, the opake acid dissolves more slowly than the transparent; this circumstance, which modifies the nature of the products formed during solution, explains why the phenomena observed by M. Henry Rose during the crystallization of the trans-

parent acid, are not in general so intense in the solution of the opake acid. 11. That the difference which has been observed in the action of the two arsenious acids, on the tincture of litmus is merely apparent.—(*Journal de Chimie Médicale*, Feb. 1848.) *London, Edinburgh and Dublin Philosophical Magazine*, May 1848.

T. R. B.

70. *Test for Strychnine.*—In 1843, M. Marchand described the remarkable and perfectly characteristic property, possessed by strychnine of giving a magnificent blue colour, passing quickly to violet, and lastly to yellow, when triturated with peroxide of lead and a few drops of concentrated sulphuric acid, containing one-hundredth of its weight of nitric acid. Since the period above mentioned, several chemists have examined this reaction, and M. Herzog has proposed to omit the nitric acid as useless; another chemist proposes to substitute peroxide of manganese for peroxide of lead, and M. Otto prefers bichromate of potash to these oxides, which, according to him, gives rise to a much finer violet colour, and to a certain extent, this is certainly the case.

M. Marchand proposes certain objections to these omissions and substitutions, and demonstrates that the reagents which he has proposed are the best suited to the purpose.

First, the nitric acid added in the proportion of one-hundredth to the sulphuric acid, is not useless, as stated by M. Herzog, for by its influence, the series of colours is produced much more readily and sensibly than when it is omitted. M. Marchand states that he was aware that strychnine yielded a fine blue colour by the action of pure sulphuric acid and peroxide of lead only; but that it is impossible to perceive the red and yellow colours, which are readily perceptible in the conditions prescribed by him; and the author adds, that he never said or believed, as supposed by M. Herzog, that strychnine, when placed in the circumstances described, might serve as a reagent for nitric acid.

As to the substitution of peroxide of manganese for that of lead, the author has only one objection to make, which is, that the salts of manganese sometimes possessing a red colour, there can be no certainty that the series of colours obtained belongs properly to the substance supposed to be strychnine, since one of the reagents employed may itself give rise to one of the colours indicated.

The same is the case with the bichromate of potash recommended by Mr. Otto. This salt produces by its solution in sulphuric acid, a yellow or green colour, and it follows that the series of colours indicated by M. Marchand is diminished by at least one colour, and sometimes by two, the yellow and red, and consequently the reaction is far from being complete.

The method of employing M. Marchand's process is that of triturating the strychnine with peroxide of lead and concentrated sulphuric acid containing one per cent. of nitric acid: by this process, the colours obtained are blue, becoming rapidly violet, then gradually red, and lastly, after some hours, it assumes a delicate yellow colour.—(*Journal de Chimie Médicale*, April, 1848.) *London, Edinburgh and Dublin Philosophical Magazine*, May, 1848. T. R. B.

71. *Proof of Poisoning.* "A case involving a point of some interest as regards medical jurisprudence, occurred at the last Liverpool assizes. The facts were as follows:—

"Elizabeth Johnson was charged with the wilful murder of her husband, by administering arsenic. The deceased, who, at the time of his death, was in the forty-second year of his age, was described as being a very healthy man, and, as one of the witnesses said, had never been known to suffer a day's illness in his life. After partaking of supper on the evening of Thursday, the 26th of November, he was seized with vomiting, and complained of severe thirst and of pain in the bowels, together with heat in the throat. Having remained in a very weak condition for some days, he died on the 3d of December. On the 4th, the day after his death, a post-mortem examination was made by a surgeon, who at the trial described the viscera as being generally healthy, and that the internal surface of the stomach was highly injected: the same appearances were presented throughout the alimentary canal; the lips were excoriated, the gullet and bladder much inflamed, and the lungs of an unusually red or scarlet colour. The surgeon stated that these appearances might arise from an irritant cause, but he had never met with them as the result of natural causes, and that arsenic would, in his opinion, produce such symptoms. The witness also stated that he thought arsenic was in the body. The other medical man, who attended the examination, upon subjecting the intestines to Reinsch's test, obtained a slight film on the copper, but so slight that he could not say what it was.

"Thus, the medical evidence, up to this period, remained in a very unsatisfactory state. However, the body, after having lain for some period in the ground, was, in consequence of some facts that transpired in the interim, exhumed in the early part of March, when a large portion of the internal parts of the stomach and the heart, were submitted to Marsh's test. The result was a metallic deposit on a piece of cold porcelain, which was found to be discharged by the action of chloride of lime. By another process, a yellow precipitate was produced.

"From these appearances, the medical men concluded, that *there was arsenic in the body, but not sufficient to have caused death.* According to the evidence of one gentleman, the matter tested did not amount to the one-thousandth part of a grain. It was proved, in evidence, first, that the prisoner purchased arsenic; secondly, that she had been heard to express threats against her husband; thirdly, that both by Marsh's and Reinsch's tests, arsenic was found in the body.

"Under these circumstances, we should not have been surprised had the jury returned a verdict against the prisoner, although the quantity of arsenic found might not have been sufficient to cause death, inasmuch as the deceased might have got rid of a portion of it by the violent vomiting which preceded his death. Much reliance, however, was placed upon the smallness of the quantity found, and in addition to this, the learned judge, in summing up, suggested that, as it is well known that arsenic was contained in many substances, and might be extracted therfrom, there was a possibility that, during the interval between the first and second exhumation of the body, owing to the grave where the body was placed, containing a great deal of water, (as appeared in evidence,) the poison discovered might be attributable to this cause.

"We confess we are inclined to think this a strange theory, and one approaching very near to the circumstances endeavored to be established in the case of Tawell, in which apple pies were suggested as the medium of arsenic (*prussic acid?*) and cause of death. In the principal case, however, to which we are alluding, the suggestion was more successful, and the jury acquitted the prisoner."—*The Jurist*, May 1, 1847.

The above article seems to have given offence, and accordingly in the succeeding number, (May 8th,) there is an attempt at an apology, with the following additional remarks. "It appears that, at the first examination of the body of the deceased, no arsenic was found, and the jury on the inquisition returned a verdict of natural death. On the second examination, however, a small portion of arsenic was detected, and the medical witnesses stated that it was impossible their experiments could have introduced it, because the zinc and other metals used by them, in making the test, were previously tested, and were found quite pure, and in addition, the water was pure distilled water. Then on summing up, the learned judge stated that, this being so, it was material for the prisoner that the attention of the jury should be called to the fact proved, viz., that after interment, the body, from the wetness of the soil around, had become filled with water, which, not being pure distilled water, might reconcile the appearances at the first examination, when no arsenic was found, with those of the second, when slight indications appeared; but that, if large quantities of arsenic had been found on the second examination, the fact of the body having absorbed the water, ought not to be taken into their consideration." T. R. B.

72. *Poisoning by Bichloride of Mercury.*—Three cases are stated to have occurred at Guy's Hospital, during the year April 1846, to March 1847.

The first case occurred in a man aged fifty. Probably about a drachm was taken, and with a suicidal intent. The symptoms were anxiety, lividity of countenance, and prostration, violent vomiting and purging; the dejections consisting mostly of mucus tinged with blood; skin moist, and occasional cramps; soreness of the mouth and fauces; no pain in the abdomen. The remedies used were eggs and opium. The tongue became covered with a grayish-white crust, and rigors and convulsions came on before death. The patient lived five days with these symptoms. All this time, there was total suppression of urine, and absence of salivation. The necroscopic examination showed all the organs to be comparatively healthy except the colon and rectum, which were violently inflamed, and of a dark-chocolate colour, the mucous membrane in many places sloughing.

Another occurred in a young woman, who attempted to swallow a cupfull of the solution of bichloride, but being resisted, only a sufficient portion entered to affect the mouth and fauces, and none was swallowed. These parts were white, swollen and sore. The sub-maxillary glands were enlarged, but there was no ptyalism. The action was purely local, and the patient speedily recovered.

The third case of poisoning by corrosive sublimate, was a suicidal act in a woman. The exact quantity was not known, but it was stated, the greater part of two-pennyworth. Her symptoms were extreme prostration and restlessness; absence of pain in the abdomen; violent vomiting and purging, with bloody stools; no salivation; urine naturally secreted; intense inflammation of the vulva. The patient lived eight days. The principal necroscopic appearances were in the large intestine, which was of a deep chocolate colour, with sloughing green patches of mucous membrane. The vulva, also, was in a sloughy state.—*Guy's Hospital Reports, New Series*, Vol. 5. T. R. B.

73. *Remarkable Case of Suicide*, by Prof. Fenger, of Copenhagen. The patient fired a pistol, loaded with pretty large shot, into his mouth. There was considerable laceration, but he went on very favourably for four days, when violent hemorrhage took place from the mouth and nose, which proved rapidly fatal. The *post-mortem* examination showed that a single shot had penetrated into the right sphenoidal sinus, and wounded the carotid on the side of the cella turcica.—*Monthly Journal of Medical Science*, (Bennett's,) Feb. 1848. T. R. B.

74. *Appearance of the Areola as a Sign of Pregnancy.*—Dr. Simpson showed the Edinb. Obstetric Society a woman seven months gone with child, whose breasts gave no indication whatever of her pregnant state. The case was a peculiar one. There was no doubt of her being pregnant, as the fœtal heart could be distinctly heard; but at an earlier stage, great doubt had been thrown on the nature of the case, from the presence of several large fibrous tumours in the walls of the uterus. These had even given rise to the suspicion, on the part of the physician she had consulted, that the fœtus was extra-uterine. She had been four years married, and was now pregnant for the first time. On examining both breasts, there is no appearance whatever of a single enlarged gland on the areola, besides, the areola is not all tumid, and is scarcely darker than the surrounding skin. Dr. Simpson had caused a drawing to be made of this breast, which he contrasted with another, of the areola of a lady who had never been pregnant, but was suffering from great uterine irritation. In this last instance, the areola was turgid and of a dark-brown colour; the papillæ were numerous and much enlarged, and the superficial veins very large and prominent. He had observed the same appearance as in the last case, in other non-pregnant women. In one, the woman could never be pregnant, as the uterus was malformed, and not more than an inch and a half in length. In another case, the marks were so distinct, that the late Dr. Hamilton, trusting mainly to them as undoubted indications of pregnancy, two or three years before, pronounced the lady to be pregnant, when the uterus was only enlarged by a mass of fibrous tumours.

Dr. Kerr had under his care, a lady who is now four months gone in her third pregnancy. The areola is not at all discoloured, but the papillæ are much enlarged and prominent.—*Ibid.*, March 1848. T. R. B.

75. *Simulated Œdema of the Left Arm.*—A woman, aged forty years, said to be from the Provinces, came expressly to Paris in order to be treated for a considerable œdematous swelling of the whole of the left arm, a swelling which she attributed to a commencing elephantiasis, one of her sisters having, according to her statement, had a similar affection of the arm. She was received at La Charité, in the wards of M. Cruveilhier. The limb was placed upon a pillow, forming

an inclined plane from the axilla. An attentive examination of the arm, axilla, shoulder, and breast, led to the discovery of nothing that explained the singular and abnormal swelling. The inclined position caused no change in it for several days. Her general health was excellent. The swelling of the limb was more evident in the morning and during the day, and greater in the arm than in the forearm and hand. It did not, however, resemble an ordinary œdema; the pressure of the fingers left no depression, nor was the skin hard, doughy or otherwise diseased. Early one morning, the patient was surprised with a tight ligature, which she had placed during the night, round the upper part of the arm near the axilla, which had strangled the circulation. The following day, not having a cord to tie round the arm, she produced the same effect by pushing up the sleeve of her chemise, and twisting the edge of it strongly, so as to compress the limb. The deception could be easily perceived on carefully examining the superior part of the limb, where a circular mark was observed made by the ligature.—*Ibid.*, March 1848, from the *Annales de Thérapeutique*. T. R. B.

MISCELLANEOUS.

76. *The Influenza which prevailed in London in* 1847–48.—Dr. Webster brought this subject under the notice of the Westminster Medical Society, not so much to describe the symptoms characterizing the existing epidemic, as to mention a few facts which appeared of interest respecting its very great prevalence and mortality. According to his own observations, almost all the cases were accompanied by remarkable prostration of strength, of a much more decided character than during the former epidemic influenza. The pulse was usually very feeble: the extremities were often felt exceedingly cold, notwithstanding the mild temperature of the weather; and the pectoral affection generally present, although sometimes apparently of an inflammatory nature, was seldom so in reality. The general type of the complaint was asthenic, as exhaustion, debility, and depression of the system were the marked features of this malady throughout all its stages. According to the Registrar-General's reports, the disease, although rather prevalent in London during last November, did not prove very fatal until early in December. The deaths, in the second and third week of the former month, were only four in each of those two periods: but in that ending the 27th November, thirty-six deaths are reported from influenza. It was, however, during the first three weeks of Dec., that this epidemic malady proved most fatal, 842 deaths having then occurred in the metropolis, in a gross mortality of 6816; thus making the deaths from influenza 12·35 per cent. of the whole. Of these, 421, or exactly one-half, occurred in persons above sixty years of age; whereas, less than one-fourth, or only 193 individuals, under fifteen years of age, were carried off by this epidemic during the same period. Contrasted with the above results, the deaths from the same complaint during the first three weeks of the current month of January had been considerably less than half the number which took place in the first three weeks of December, being 331 in a gross mortality of 4420, or only 7·48 per cent. of the whole, instead of 12·35 per cent., as in the previous instance. It is also curious that, unlike the results observed in the early part of last December, the majority of deaths from influenza during the first three weeks of January had occurred in persons under fifteen years of age, their number being 128; whereas only 102 individuals sixty years old and upwards died during the same period from this complaint. The gross mortality from all diseases has been much greater throughout the metropolitan districts during the present winter than for many years past, and even since the great plague, 12,483 deaths, or nearly double the ordinary number, have occurred during seven weeks, of which 1315, or 10·53 per cent., were from influenza. The deaths reported as from influenza in the week ending January 15th, had, however, fallen to 102; whereas, during the week ending the 11th of December last, the fatal cases from the same complaint had increased to 372, or more than three times the subsequent amount. During the first three weeks of December, when the epidemic was most prevalent and fatal, the temperature of the weather was remarkably high for the season of the year, it being

often 56° or even 57°, the mean temperature of the whole period being 47° Fahr. The atmosphere was also very moist. The wind continued constantly south-west or south, and generally blew strong, whilst during the week in which the mortality from influenza was greatest—viz., in the week ending the 11th of December—the wind was often very high, and even stormy. On the other hand, during the three weeks ending the 15th of January, when the frequency and severity of the epidemic had so much declined, the weather had become much less moist, or even dry, and was generally calm in comparison, whilst the prevailing winds were either easterly or northerly. The temperature of the air also ranged from seven to thirteen degrees under the average of the previous period, the mean height of the thermometer having indicated thirty-four during the first week, forty in the second, and thirty-six in the third. Speaking generally, Dr. Webster's own plan of treatment was almost always stimulating and tonic—the reverse of antiphlogistic. The usual remedies he employed consisted of antimonial powder, with extract of conium or hyoscyamus, and small doses of ipecacuanha, to allay cough and bronchial irritation. Ammonia, senna, cascarilla, cusparia, with nitric acid and quinine, proved frequently most useful, particularly the latter remedy, towards the end of the attack. When aperients were required, the mildest were only admissible, such as castor oil, &c., and the strength should be supported by beef-tea, mutton-broth, arrow-root, light and nutritious diet, with wine, and even brandy, all liquids being given warm. The patient remained in bed, and the horizontal position was enjoined (by Dr. Webster), with warm applications to the extremities, when necessary; and mustard poultices, or sometimes blisters, were applied, but the former remedy was generally preferable. Bleeding, or depletion in any form, according to all but universal consent, was considered improper, and, if ever employed, proved injurious: even tartarized antimony, so frequently useful in apparently similar complaints, at other seasons, he (Dr. Webster) found not only inferior to ipecacuanha, in the recent epidemic, but often inadmissible, from the depressing effects it produced upon the system.—*London Medical Gazette*, February, 1848.

77. *Re-Vaccinations in the Prussian Army in* 1847.—The total number of men vaccinated was 43,264; the number of those who bore marks of a former vaccination in a decided manner, 34,264; ditto with the marks not very distinct, 6,405; ditto with the marks not visible at all, 2,927. The vaccine virus developed itself satisfactorily in 25,544; very irregularly in 7,425; and not at all in 10,627. The vaccinations which had yielded no results were repeated; they acted in 2,718; and failed entirely in 8,952 cases. In consequence of the present vaccination, there were developed from one to five vaccine pustules upon 13,295; from six to ten upon 8,164; from eleven to twenty upon 5,767; from twenty-one to thirty upon 1,036 of the men. Amongst those who were vaccinated in the year 1847, there was, within the same year, no case of varicella, none of actual small-pox, and one only of ckicken-pox. The lymph was obtained from vaccinated children or grown-up persons. It is remarkable that amongst those who were subjected to re-vaccination there were several who had had the small-pox before, yet upon whom the vaccine matter produced the usual pustules.—*Lancet*, June 17, 1848.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

Case of Prolonged Gestation in which the date of the Conception was accurately ascertained. By R. H. McIlvain, M. D., Charlotte, N. C.

The following case of gestation, prolonged to probably 296, certainly to 293 days, occurred under the personal observation of the writer. The parties are of unexceptionable character, and the statement of the husband that no intercourse was had after the night of the 4th of July, may be implicitly relied on.

Mrs. ———, whose character is above suspicion, was visited on the evening of July 1st, 1847, by her husband, whose business had compelled him to reside for more than a year before in a distant state. The husband remained till the morning of the 6th of July, and then departed, and did not return for more than nine months. On the nights of the 1st, 2d, 3d, and 4th of July, there was sexual intercourse between the parties, but none on the night of the 5th or after. Shortly after Mrs. ——— considered herself pregnant, and on the 23d of April, 1848, was delivered after an easy labour of a fine healthy female child, weighing nine pounds.

Supposing impregnation to have occurred on the night of the first, as a consequence of the first coition, the duration of the pregnancy must have been 296 days, but if we suppose the last copulation to be the one from which the pregnancy resulted, the period of gestation was 293 days.

This case is interesting, inasmuch as it furnishes conclusive evidence, that gestation may be prolonged to thirteen, if not sixteen, days beyond the usual period.

The large size of the child—being a full pound and a half above the average weight of female children, is a circumstance in favour of its having been carried beyond the usual period.

The mother had borne three children previously, none of which weighed over eight pounds.

Charlotte, *N. C., May* 25, 1848.

The Smart-weed as a Remedy for Mercurial Salivation and Aphthous Stomatitis. (Communicated in a Letter to the Editor.) By R. Wilcox, M. D., of Elmira, New York.

I have frequently, during the past year, prescribed a decoction of the leaves of the herb, well known by all in this country, and familiarly denominated, smart weed, as a remedy in mercurial ptyalism, and also in that form of aphthous stomatitis, which occurs during lactation; and the degree of satisfaction I have felt while using it, has only been equalled by my surprise.

The possibility that this plant might possess remedial powers for salivation was suggested to my mind by the fact that farriers employed it with success to the cure of that disease of the salivary glands of the horse called slabbering; and being destitute so far as I then knew of any agent, which, if locally applied, would exert a decided curative effect, I resolved upon its trial the first opportunity. The opportunity soon presented itself. The remedy was used; and I was agreeably surprised when I saw every distressing and unpleasant symptom removed in twenty-four hours.

I have now employed it in about twenty cases of mild mercurial salivation, and have uniformly procured the same prompt and complete relief. I have tried its use in two of the severer forms, attended with numerous and deep ulcerations; these cases were made much more comfortable, but not cured. The benefits I derived from it in salivation induced me to make trial of it in the follicular stomatitis of nurses, which appears to be endemial to the valley of the Chemung River. (At least it is of much more frequent occurrence here, than at any location with which I am acquainted.) Within the last three months, I have prescribed its use in ten cases, and without an exception, they have been speedily and entirely relieved.

I am not prepared to state what can be accomplished with it in those cases of aphthous stomatitis connected with a tubercular state of the constitution, having yet had no such case; neither have I used it where the ulcerations were deep; in such cases, other remedies will doubtless be more effective. I suggest the remedy to my medical brethren for further trial, and if it shall prove in their hands to be worthy the commendation I have given it, I shall ever feel myself abundantly rewarded. The manner in which I have used it, is to take about an ounce of the dried leaves and tops. Water, one pint, boil twenty minutes and strain. The mouth is washed with it every hour through the day.

Elmira, N. Y., *May 8th*, 1848.

Case of Wesley Pine, the murderer of Mrs. Russell. W. P. **Gibbons**, M. D., Poughkeepsie.—On the 19th of January, 1848, Wesley Pine shot Mrs. Russell, at her residence in Pleasant Valley. He was tried at the Oyer and Terminer of Dutchess county, Judge Barculo presiding—condemned and sentenced. The execution took place on the 26th day of May, in one of the cells of the prison. He seemed to retain consciousness for about two minutes; his struggles continued for four minutes and a half, and at the expiration of half an hour he was cut down.

This individual was about 36 years of age. According to his own account, from the time that he was 15 or 16 he had occasionally been subject to melancholia, at which times he would take liquor; a very small quantity of which would have a great effect upon him.

At three different periods of his life he attempted to kill himself. His father committed suicide; and from the evidence elicited during the trial, it appears that other branches of the family had been subject to monomania. The prisoner's counsel made the defence on the ground of insanity.

Port-mortem examination two hours after death, in presence of Drs. J. Barnes, R. A. Varick, H. H. Cochran, and E. Deyo.

The following measurements of the head were taken, as recommended by Combe:

Distance across the frontal and around the spinous process of the occipital bone, . .	21.6	inches.
From occipital spine to individuality, .	$7\frac{1}{2}$	"
" occipital spine to ear, . . .	$4\frac{2}{10}$	"
" ear to individuality, ...	$4\frac{3}{4}$	"
" ear to firmness, ...	$5\frac{3}{10}$	"
" destructiveness to destructiveness, .	$5\frac{9}{10}$	"

From cautiousness to cautiousness, . .	5 inches.
" ideality to ideality, ...	$5\frac{2}{10}$ "

Expression of the countenance natural.* Slight suggilations over the forehead and lower part of the face. Pupils clear; conjunctiva somewhat injected. Tongue and gums exsanguiated.

Body warm; temp. of the abdomen 80°. Rigidity of the muscles of the legs and face. Colour of the body natural. Form well developed, muscular.

Pressure of the knot a little to the left of the occipital tubercle; no dislocation of the neck. Slight fecal evacuation. In cutting the scalp, the posterior temporal view of the right side was divided, from which there was a free discharge of black fluid blood; with this exception little or no blood escaped from the incision. Skull thin. Superficial veins of the brain much engorged with dark and liquid blood. A number of small spongy excrescences were scattered over the surface of the pia mater of the right side. Adhesions of the membranes to each other and to the substance of the brain on each side of the longitudinal sinus, and upon the middle lobes of the cerebrum. At the points of adhesion with the brain were four or five firm, white, fibrinous deposits of the size of a sixpence. Around these as nuclei the pia mater was thickened, and infiltrated with serum, having the appearance of jelly, the whole occupying a space of about three inches square. Ventricles filled with serum.

Weight of the entire brain, without the dura mater,	48.30 ounces.
" of the cerebrum, ...	41.40 "
" of the cerebellum, ...	6.90 "

On slicing the brain, the centrum ovale was found to be softened; there were but few bloody points in the horizontal sections. Choroid plexus injected. Cerebellum softer than the centrum ovale.

The trunk was opened by an incision extending along the median line of the body, from which no blood escaped. Extensive adhesion between the costal and pulmonary pleura of the right side. Lungs filled with air, and the vessels engorged with dark fluid blood; structure healthy; no liquid in the cavity of the chest. But little serum in the pericardium; heart natural; cavæ and right auricle filled with dark fluid blood; left side nearly or quite empty; no coagula in any of the cavities.

Peritoneum and viscera of the abdomen healthy. The stomach contained about two fluidounces of chyme, and the duodenum and small intestines about twice as much chyle; the prisoner had eaten a full breakfast. Small patches of inflammation in the mucous membrane of the stomach. Weight of the liver, 5 pounds avoirdupois; gall-bladder full. Spleen much engorged; weight, 9 oz. 1 dr. Weight of the kidneys 12 oz. 6 dr. No froth in the œsophagus or air tubes. No coagulated blood was observed in any part of the body.

On Antiscorbutic Diet.—By Isaac G. Porter, M.D. (Extract from a letter to the Editor.)

The idea advanced by Dr. Foltz, U. S. N., in his report on scurvy, (see No. of this Journ. for Jan. 1848,) that the antiscorbutic properties of the potato reside in its *starch*, struck me with much force. Little else enters into its composition, if we except water, some fibrous matter, and a little mucilage, or albumen. That its beneficial properties, therefore, are owing to this ingredient, seems a legitimate and natural conclusion; a conclusion strengthened by his argument, drawn from an analysis of scorbutic blood.

"From intercourse with masters of ships engaged in the whale-fishery, I have long been acquainted with the reputed properties of the potato, in this respect, and recent conversations with them have confirmed me in the correctness of the opinion. Not an individual among them but feels perfectly secure against the scurvy, so long as he has potatoes on board. But they must not be too old, as they dry up and become useless. Capt. McC. says: "At New Zealand I purchased a large supply of potatoes, but they were of the old crop, the time for digging new ones not having arrived yet, being near at hand. I proceeded to sea, and two months afterwards, with a plenty on board, the scurvy broke out, and I had nine men down with it. As I was about sailing for port on their account, I fell in with a French vessel, just from shore, with some potatoes of the new crop on board. I could obtain only about a bushel, but that was sufficient to cure every man, though their gums were swollen and black, their teeth just ready to fall out, and their limbs beginning to show dark spots."

Their value is also shown in this journal, for Oct. 1847, p. 455. During the late famine in Ireland, scurvy became prevalent in certain localities, those suffering from it, "having a sufficiency of bread—others, meat in addition, with sometimes wine or porter; but all had been deprived of potatoes for months." "Experience," the writer adds, "has long shown that a diet consisting solely of the potato, is capable of affording nourishment and of preserving the body in perfect health." Certain nations, it is well known, subsist almost entirely on rice, arrow-root, and similar kinds of vegetable food. These are all of the *starch class*, and it may be that therein, as with the potato, resides their chief value. These articles, particularly arrow-root, may furnish a desirable substitute for starch, as this latter is rarely if ever used, in its separate state, as an article of diet, while the former is equally portable, and may be made into excellent puddings, with spices, and if eaten with sauce of lemon juice and sugar, may be highly palatable. It may be purchased in any quantity in the Islands of the Pacific and elsewhere, and often as low as two and three cents the pound, which is much cheaper than flour as an article of diet. The same is true of Tapioca, and other articles of the starch-class.

Conversing, a few days since, with Capt. R., one of our oldest ship masters in the whaling fleet, I mentioned to him the theory in relation to starch, as being the chief ingredient in the potato. His crew had suffered most severely from scurvy in his last voyage. I inquired if he had any arrow-root on board. "No," was his reply, "for I was disappointed in obtaining it at the island, as it is my custom to do, for puddings, &c." On my informing him that arrow-root was almost entirely a form of starch, after some reflections he said—"I cannot but think there is truth in the theory you have named, for on looking back, I find that during those voyages when I took most arrow-root on board, I had the least scurvy. Besides," he added, "I was perfectly well during this last voyage, while all were sick around me, and two men died; and I know not to what to attribute it, unless it be to a practice which I have followed for years, of having, while at sea, a bowl of arrow-root gruel at my breakfast."

If the benefit resulting from the use of starch be as has been suggested, it may be profitable to contrast its compositions and its powers, as regards supplying the wants of the animal system, with other articles of diet. Thompson, in his late "Researches on the Food of Animals," gives the following list of nutritive or nitrogenized, and calorifacient or respiratory proportionals in a few familiar articles. Starch has 1 proportional of the former and 40 of the latter. Arrow-root 1 of the former to 26 of the latter. Rice 1 to 10. Potatoes 1 to 9. Wheat flour 1 to 8. Barley 1 to 7. Oat meal, 1 to 5. Beans 1 to 2½. Milk 1 to 2. Are articles of diet antiscorbutic, just in proportion to the relative quantity of carbonaceous fuel they contain? Or does the antiscorbutic property reside in a due admixture of the two elements referred to, and which is found existing naturally in the potato? These are questions which can only be solved by experience and observation, and the result of my inquiries has been contributed with the hope that it may tend, at least, to direct the attention of others to the subject.

Scurvy is much more prevalent at the present day, than is generally imagined, and will even be liable to occur in whaling and other voyages, requiring long absence at sea. Should experience confirm the foregoing theory in relation to the starch-class, it will furnish a beautiful illustration of the wisdom and goodness of the Creator, in placing the remedy in the immediate neighbourhood of the disease, existing, as does the former, most abundantly on sea-coasts, and in the islands of the sea. The discovery, if such it shall prove, is simple, (but simplicity is the seal of truth,) and will confer infinite advantage on the interest of navigation, and the health and happiness of seamen. We cannot, however, expect that singly and alone it will prove a specific. Combined, as Dr. T. suggests, with lime juice, its powers will be increased, but there must also be the avoidance of other active causes of disease aside from ill suited diet; such as cold and moisture, ill ventilation, and want of cleanliness, mental depression, over-fatigue, and its contrary, want of exercise.

I cannot close, without alluding to the strong testimony adduced by Capt. P. in favour of the sal. nitre and vinegar treatment. He had been eleven months at sea, with only one ton of potatoes, and a crew of about thirty men, when the scurvy appeared in its most appalling forms. All except the officers, (four or five in number,) were prostrate, so that not a man was able to go aloft, on the duties of the ship. One man had died, others were scarcely alive, when they fell in with an English ship, that furnished them with nitre, and the directions for using it. This mode of treatment, it is well known, was first suggested by Mr. Patterson, Surgeon R. N., in 1794. It was not, however, his directions which were followed on this occasion, but the mode proposed by Mr. Cameron, Surgeon R. N. See *Cyc. Medicin.*, by Forbes, article Scorbutus; also, *Med. Chirurg. Rev.*, 1830, p. 483. In three days after commencing its use, one man, who was previously regardedas near his end, was able to go aloft; another died after a very few doses, being beyond remedy before the medicine was commenced—but the remainder of the crew speedily recovered, without going into port. Since that time, he has always taken it with him, in his voyages, and whenever, from the period he has been out at sea, and other circumstances, he fears the disease is about making its appearance, he commences the remedy in small doses, and thus far, his crew has always escaped. During the disastrous voyage alluded to above, after his nitre was exhausted, he used nearly a keg of gunpowder with vinegar, the effects of which, he thinks, are rather more happy than those of the nitre.

New London, *June 20th*, 1848.

[The interesting facts furnished by our correspondent may be considered as confirmatory of the views of Dr. Garrod, whose important researches will be found at p. 200 et seq. of the present No. of this Journal.—Ed.]

Kreosote in Erysipelas. By P. Fahnestock, M.D., of Pittsburgh (Extracted from a letter to the Editor.)

Allow me to state that, during a practice of many years, I have been in the habit of using kreosote in erysipelas of the face, (as well as on all other parts of the body,) in both its simple and phlegmonous forms, confining my local treatment to this article alone. And such has been the success of this treatment, that I have as yet to witness a case which has not yielded to it.

In every case of local erysipelas I immediately apply the purest kreosote with a camel's hair brush over the whole of the affected surface, extending it some distance beyond the inflamed part, and at the same time administering a dose of chlor. hydrarg. followed by a sufficient portion of jalap to insure free catharsis. This, in the majority of cases, is all I find necessary. But when the mucous membrane of the mouth and fauces is also affected, I pencil those parts with a strong solution of the nit. argent., say from ʒss to ʒi to ℥i of distilled water.

In the phlegmonous form it will be found necessary to repeat the application more frequently than in the simple, with the addition of a bread and water poultice, applied nearly cold and well sprinkled with water strongly impregnated with the kreosote, or a cloth, kept constantly wet with the solution, especially for the face.

The kreosote when applied, should cause the parts to become white immediately. If this does not occur, it is not pure. Thus you will perceive that success depends upon having the best quality of oil. It is worthy of remark that the skin does not become in the least marked by the application, no matter how often it is applied.

I was first induced to make a trial of this remedy, by a remark made by Dupuytren in a small pamphlet which fell into my hands, in which he supposed it might be a good remedy in this disease.

The result of an extensive and exclusive use of this article in erysipelas, has induced me to place the most implicit confidence in it; and all I ask of the profession is a fair trial for it, confident that whoever once tries it, will abandon all other articles in its favour.

P. FAHNESTOCK, M.D.

Pittsburgh, *June* 1*st*, 1848.

Proceedings of the Third Meeting of the Association of Medical Superintendents of American Institutions for the Insane.

The Association of Medical Superintendents of American Institutions for the Insane, commenced its third meeting, at the Astor House in the city of New York, on the 8th of May, 1848, the Vice President, William M. Awl, M. D., in the chair and Thomas S. Kirkbride, M. D., Secretary.

Present—Dr. James Bates, of the Marine Insane Hospital at Augusta; Dr. Andrew McFarland, of the New Hampshire State Hospital at Concord: Dr. Wm. H. Rockwell, of the Vermont State Hospital at Brattleboro; Dr. Luther V. Bell, of the McLean Asylum for the Insane at Somerville, Mass.; Dr. C. H. Stedman, of the Boston Lunatic Asylum; Dr. N. Cutter, of the Private Institution at Pepperill, Mass.; Dr. John S. Butler, of the Connecticut Retreat at Hartford; Dr. Amariah Brigham, of the State Lunatic Asylum at Utica, N. Y.; Dr. Pliny Earle, of the Bloomingdale Asylum, N. Y.; Dr. James Macdonald, of the Private Institution at Flushing, L. I.; Dr. —— Renney, of the Lunatic Asylum on Blackwell's Island, N. Y.; Dr. G. H. White, of the Hudson (private) Lunatic Asylum, N. Y.; Dr. Horace A. Buttolph, of the New Jersey Lunatic Asylum at Trenton; Dr. Thomas S. Kirkbride, of the Pennsylvania Hospital for the Insane at Philadelphia; Dr. Joshua H. Worthington, of the Friends' Asylum at Frankford, Pa; Dr. N. C. Benedict, of the Blockley Insane Asylum at Philadelphia; Dr. Fonerden, of the Maryland Hospital at Baltimore;

Dr. Wm. M. Awl, of the Ohio Lunatic Asylum at Columbus; Dr. John M. Galt, of the Eastern Asylum of Virginia at Williamsburg; and Dr. John R. Allan, of the Kentucky Lunatic Asylum at Lexington.

Dr. Samuel B. Woodward tendered his resignation of the Presidency of the Association, which was accepted, and Dr Wm. M. Awl was elected President in the place of Dr. Woodward, resigned; and Dr. A. Brigham, Vice President, in the place of Dr. Awl, elected President. The following preamble and resolutions in reference to its late President, were unanimously adopted by the Association, viz:

Whereas, Dr. Samuel B. Woodward, at the present meeting of this Association, has tendered his resignation as President thereof,

Resolved, That whilst accepting this resignation, we cannot adjourn without declaring our high sense of the services of Dr. Woodward as President of this body, and also our full appreciation of his ardent and useful exertions for so many years in behalf of the unfortunate insane.

Resolved, That the Secretary of the Association be requested to transmit to Dr. Woodward a copy of this resolution.

Agreeably to appointment, Dr. Brigham read an obituary notice of the late Dr. White, of the Hudson Lunatic Asylum and the first Vice President of this Association, which was directed to be entered upon the minutes.

Dr. A. V. Williams and Dr. Benjamin Ogden, two of the visiting physicians of the Asylum on Blackwell's Island, were invited to attend the sittings of the Association; and a resolution was adopted, authorizing each member to invite any person interested in its discussions.

In conformity with a resolution, adopted at the last meeting of the Association, Drs. Brigham and Macdonald made written, and Drs. Earle, Rockwell, Bates, Butler, Allan and Kirkbride, verbal reports on the subjects of post-mortem examinations and the pathology of insanity, which, after consideration, were referred to the standing Committee on these subjects.

Dr. Kirkbride read a report from the committee on publication, which was accepted, and the Association subsequently resolved, That the committee on publication, appointed at the last meeting, be continued, and instructed to publish such of the reports and such parts of the reports made to this association, and such parts of its proceedings as they shall deem conducive to the public good.

Elevations and ground plans of many of the institutions for the insane in the United States and Canada were laid upon the table, for examination by the members of the Association;—also a great variety of carving and fancy work made by patients in the New York State Asylum,—and a number of ingenious buckles and other improved fixtures, intended to be employed on restraining apparatus, and sent to the Association by the maker, John D. Fisher, of Philadelphia.

Written reports were made on the following subjects, and after full discussion accepted, and laid upon the table, subject to future disposition by the Association, viz.:—

On the comparative value of the different kinds of labour for patients, and the best means of employment in winter, by Dr. Rockwell; on the advantages and disadvantages of cottages for wealthy patients, adjacent to hospitals for the insane, by Dr. Kirkbride; on the relative value of the different kinds of fuel, for heating hospitals, by Dr. Bates; on the most economical mode of treating the insane of the poorer classes, by Dr. McFarland; on reading, recreations and amusements for the insane, by Dr. Galt; on the comparative value of treatment in public institutions and private practice, by Dr. White; and on the effects on the insane of the use of tobacco, by Dr. Cutter.

Remarks on the diseases and causes of death among the insane, were also read by Dr. Macdonald; on the statistics of insanity, by Dr. Earle; and a series of cases of mania-à-potu, treated by the inhalation of ether, in the Boston City Hospital, by Dr Stedman.

Invitations were received and accepted, to visit the Bloomingdale Asylum, under the care of Dr. Earle, and the private Institution at Flushing, L. I., under the care of Dr. Macdonald; and both institutions were subsequently visited, and examined with great satisfaction, and the thanks of the Association tendered to these gentlemen for their courtesy, attention, and bountiful hospitality.

The Association also accepted an invitation to visit the Asylum on Blackwell's

Island, and, after a thorough examination of the buildings and arrangements, unanimously adopted the following resolutions:—

Resolutions respecting the Receptacle for Pauper-lunatics at Blackwell's Island.

The "Association of Medical Superintendents of the American Institutions for the Insane," holding their third biennial meeting in this city, have availed themselves of the kind invitation of the civil authorities superintending the receptacle for the pauper lunatics of this great metropolis, at Blackwell's Island. to visit and examine the unfortunate class there resident, and the provision made for their care, their amelioration, and their recovery.

It would be far more grateful to their feelings, could they leave this, as they do the other asylums for the insane, in this vicinity, which they have also examined, in silent but respectful regard at seeing great objects properly accomplished. In so doing, they would escape the unpleasant necessity of instituting painful criticisms in the face of personal civilities, and the hazard of being considered, by the unreflecting, as guilty of improper interference in the affairs of a community not their own.

Devoted as most of them have been for many long years of their lives to the care and restoration of those deprived of reason; familiar as many of them have been from personal examination, with the condition of this class of sufferers under the varying circumstances of the different communities of the old and new world; looking upon themselves, while citizens of widely separated states, yet common denizens of that republic of humanity that knows no state lines, they willingly venture all risk of being misunderstood and misrepresented, when they declare their conviction that the arrangements for the three or four hundred pauper lunatics of this city are far in the rear of the age, of the standard of other regions equally advanced in civilization and refinement, of the imperative demands of common justice, humanity and respect due to the image of a common Father, however much disfigured and changed.

They would, therefore, appeal to the authorities of this mighty and opulent metropolis of the western world, to sustain the honour of their leading position; to those who must feel that they and their children have no immunity against loss of property, of friends, and of reason; to those who recognize the obligations imposed by their own elevation and success to protect the friendless and miserable, to interpose their determined resolution no longer to permit the Empire City to stand below the demands of the age, in the justice, humanity, yea, in the common decency, with which those guilty of no crime, but stricken by the hand of Providence in the loss of reason, are treated. Suffer no longer, we implore you, those whose sensibilities are not extinguished, but may even be more intense, whose honest self-respect and pride of character are not always permanently obliterated, whose return to society and to usefulness is not elsewhere the rare exception, but the expected result; to be abandoned to the tender mercies of thieves and prostitutes, who are, to a considerable extent, the associates and keepers of this helpless charge, and clothed with all the delegated authority and influence which such a relation necessarily implies.

This Association has neither the means nor disposition to inquire why the pauper lunatics of this community should have been allowed to lapse into that depth of degradation and neglect, of which it would be difficult elsewhere to find a parallel.

Enough is it for them to know that such is the fact, notwithstanding plans and designs for every modern architectural requirement, as well as curative and ameliorating appliances, have been long in the hands, and subjected to the favourable criticism and comparison of those elsewhere charged with the same duties, and have been recognized as fully adequate to meet the exigency.

They have examined the recent report of the medical visitors, and conclude with them fully in their conclusions, as to the necessity of an entire change in the system; in the impossibility of doing all that justice, humanity, and a sound economy require for the insane, except at a cost of money sufficient to provide faithful, competent, respectable assistants or keepers, and adequate means of classification, inspection, labour, amusement, ventilation, and cleanliness. They believe a just economy requires the abandonment, or conversion to collateral uses merely, of those miserable apologies for insane hospitals, known as the old and the new *madhouses;* and that if the island is retained as a site for these institutions, the original design, fully satisfactory in its great outlines and principles, should at once be carried out to completion.

The following preamble and resolution were adopted by the Association, viz:

WHEREAS, in the selection of medical superintendents to American institutions for the insane, it is important to choose men with the highest qualifications, both as respects professional acquirements and moral endowments, therefore,

Resolved, That any attempt, in any part of this country, to select such officers through political bias, be deprecated by this Association as a dangerous departure from that sound rule which should govern every appointing power, of seeking the best men, irresponsive of every other consideration.

The following resolutions were also adopted during the different sessions of the Association:

Resolved, That a committee be appointed to report to this Association, at its next meeting, the best terms for the classification and designations of the different forms of insanity, and also the best anatomical and pathological terms for the various parts of the brain, and a nomenclature of the diseases which prove fatal to the insane.

Resolved, That a committee be appointed to suggest the best plan of calling the attention of physicians in general practice to the proper treatment of the insane at their homes, and especially to their treatment during the first period of their disease.

Resolved, That the members of this Association be requested to prepare and present to a future meeting, a statistical analysis of all the cases of insanity which have been admitted into the different institutions under their care.

Resolved, That all subjects heretofore referred to committees, and not reported on at this meeting of the Association, be continued in the hands of the present committees for future action.

Resolved, That a committee be appointed who shall, either before or after our adjournment, select subjects and appoint members to report on the same, in writing, at the next meeting of the Association.

Resolved, That previous to the future meetings of the Association the secretary be requested to invite the Boards of Trustees, managers, or official visitors of each insane asylum on this continent, to attend the sessions of this body.

Resolved, That the thanks of this Association be tendered to Messrs. Coleman & Stetson, of the Astor House, for their very liberal provision for the meetings of the Association, and for which, on account of its benevolent objects, they have declined receiving compensation.

Resolved, That the thanks of the Association be tendered to the officers for the able manner in which they have performed the duties of their respective stations.

Resolved, That the Secretary be instructed to furnish an abstract of the proceedings of the Association to the editor of the American Journal of Insanity, and to the editors of the various Medical Journals in the United States, for publication in their respective periodicals.

The Association continued its sessions until the afternoon of the 12th of May, and then adjourned to meet in the city of Utica, N. Y., on the third Monday of May, 1849, at 10 o'clock, A. M.

By order of the Association,

THOMAS S. KIRKBRIDE, *Secretary.*

DOMESTIC SUMMARY.

Popliteal Aneurism successfully treated by Compression.—Dr. J. KNIGHT, of New Haven, relates, in the *Boston Med. and Surg. Journ.* (May 10, 1848), the following case of popliteal aneurism, successfully treated by compression:—

"On the 18th of October, 1847, I was consulted, at the request of Dr. D. A. Tyler, of this city, by Henry Johnson, a wood-sawyer, about 48 years old, for a tumour in the left ham—the left leg being the limb he uniformly stood upon whilst at his business. This tumour Dr. Tyler considered to be an aneurism of the popliteal artery. For several months he had suffered from pain in the limb, especially below the knee, which the patient thought was rheumatism; and about two months before, had discovered a small tumour in the ham, which pulsated from the beginning, and which, as well as the pain, had been gradually increasing. I found the tumour of such a size as to occupy the whole of the popliteal space, and to press strongly upon the tendons of the flexor muscles, particularly those upon the outside of the limb. The leg, below the knee, was very painful and largely œdematous. All the symptoms of aneurism were so strongly marked as to leave no doubt concerning the nature of the affection. The action of the artery and the pulsation of the tumour were easily suppressed by very moderate pressure upon the femoral artery, either where it passes over the bone of the pubis or in the groin, or still lower down where it passes under the sartorius muscle. The patient was directed to lie in bed for a few days; and to relieve the severe pain he suffered, laudanum was administered in doses of 30 to 40 drops, and, when necessary, some of the common cathartics. By these means, employed for about a week, the œdema of the leg was cured, and the pain very much diminished; indeed, while in bed he was free from pain. The tumour, however, was unchanged in site or character.

"We now concluded to attempt a cure by pressure on the femoral artery above the tumour, upon the plan recently practised by Hutton, Bellingham and others. For this purpose we employed successively all the means which have been described—the hoop tourniquet, the calliper-shaped instrument, the common tourniquet, guarding the limb against the pressure of the strap by encasing it in thick sole leather, and by a variety of other mechanical contrivances. There was no difficulty in controlling the artery, either diminishing its action or suppressing it, by any of the instruments employed. By whatever instruments, however, the pressure was made, however carefully it was guarded, whether continued upon one point only or shifted from one part of the artery to another, the pain in a short time became so severe that it could not be borne. There was no difference, in this respect, whether the limb was left uncovered or enveloped in a bandage from the toes upward. The pain was not in the part pressed upon by the instruments, but in the whole limb below, and was felt about equally in the thigh, especially the outside of it, and the leg below the knee. The pain usually began in 25 or 30 minutes after the pressure was applied, and became intolerable in 15 or 20 minutes longer, so that it could not be continued in any instance longer than an hour. These efforts were continued at intervals for eight or ten days, and, as nothing had been gained by them, were abandoned. Others have met with the same difficulty, and have been compelled to apply a ligature to the artery.

"Before resorting to this, I concluded, with the concurrence of Dr. Tyler, to try manual pressure upon the artery. To accomplish this, a sufficient number of assistants was procured from the members of the medical class, who cheerfully offered their services. They were divided into relays—two keeping up the pressure for four or five hours, relieving each other every half hour, and these succeeded by two others, and so on. Sufficient pressure to suppress the pulsations of the tumour was found to be most easily made with the thumb or fingers, without a compress, upon the artery, as it passes over the os pubis; and the direction given to the assistants was to keep up this amount of pressure as nearly continuously as possible. This treatment was commenced at 3 P. M. No pain of consequence was produced by it for five or six hours; and then it was not severe, so that the patient was quieted by one-eighth of a grain of morphia once or twice repeated, and slept for the most part during the night. About eight hours after the pressure was applied, the temperature of the limb was diminished, and it appeared shrunken in size. At 11 o'clock next morning, 20 hours from the commencement of the treatment, upon removing pressure from the artery, the tumour had diminished very little, if at all, and pulsated about as strongly as ever, but the tibial arteries could not be felt. Probably the blood had ceased to enter them from the tumour during the night, in consequence of a coagulum forming in the artery where it left the aneurism. Upon examining the parts the next morning, about 40 hours from the commencement of the treatment, the tumour was found nearly one-third smaller in size, firm and unyielding on pressure, and entirely without pulsation.

All treatment was discontinued. The femoral artery pulsated with its usual strength in the groin, and distinctly as far as its passage through the tendon of the adductor muscles. Between this point and the tumour, it could not be felt. Several of the anastomosing arteries, especially one upon the inside of the limb, could be felt pulsating strongly and enlarged in size.

"From that time to this, a period of five months, no change has taken place in the limb, except that the tumour has gradually diminished in size so as now scarcely to be felt; and the leg, which at first was cold and weak, has nearly regained its natural temperature and strength.

"The peculiarity of this case consists in the manner of making the pressure upon the artery, by the hands of assistants instead of mechanical contrivances; and in the very slight pain which the patient experienced from it. The advantages of this mode of making pressure are such, that I should at once resort to it, if, upon trial, pressure by instruments was found to occasion much pain.

It is interesting to look back upon the improvement which has been made in the treatment of aneurism during the past one hundred years. It is but seventy years since the only treatment ordinarily adopted for an external aneurism, consisted in cutting into it, emptying it of its blood, and applying a ligature to the two ends of the artery. The danger of this operation, from inflammation and from secondary hemorrhage, was such that a large proportion of the patients died.

"The first and greatest improvement, and that which has led to all the others, was the plan devised, not guessed at, but fairly reasoned out with great sagacity from well-known physiological and pathological laws, by Mr. Hunter, of placing a ligature upon the artery at a distance from the aneurismal tumour The success of this mode of operating has been so great, that surgeons had almost ceased to look for any improvement on it.

"Upon this plan, however, the treatment by pressure is a great improvement. It is one so simple, so easily practised even by those not familiar with surgical operations, and, so far as it has been tried, so entirely free from danger, that it well deserves to be employed in all cases to which it is appropriate. The principal objection to this plan, is the pain which it sometimes produces. This is mentioned in the cases which have been stated, as often severe, and, in some, intolerable. This objection is removed, if it should be found, that in other cases, as in the one which I have stated, manual, in the place of instrumental pressure, is so easily borne. One case does not prove that it will be so, but it is sufficient to encourage others to make trial of it. In some cases of aneurism, which are so near to the trunk of the body that pressure cannot be made upon the artery between it and the heart, it may perhaps be made upon the distal side of the tumour with success. If it is so situated that efficient pressure can be made upon the artery beyond the tumour and before any considerable branch is given off from it, coagulation of the blood will probably take place, and a cure be effected.

"The treatment by pressure would seem, also, to be adapted to some cases of traumatic hemorrhage; those especially where a deeply-seated artery is divided at the bottom of a narrow wound, as in the palm of the hand or the sole of the foot. The trouble and anxiety which attend such cases, are familiar to every surgeon. In such cases, continuous pressure for a long time would probably not be necessary. It is a well-known fact, that arteries, when wounded, bleed in paroxysms at varying intervals, usually of several hours, and that obvious symptoms precede the hemorrhage. These are, increased heat, pain, and throbbing of the arteries of the part wounded. If, when these symptoms appear, pressure is made upon the artery above, as upon the brachial artery when the wounded artery is in the hand, the period of increased action of the vessels of the part and of hemorrhage may pass by, when the pressure can be removed, to be renewed again with the reappearance of the symptoms, and continued thus at intervals until the wound in the artery is healed. I make this suggestion for those into whose hands a case of this kind may fall. The trouble to the surgeon, which attends this mode of treatment, is not to be taken into the account when the life of the patient is involved, or when he is to be saved from a severe surgical operation."

False Aneurism with Obliteration, probably congenital, of the Aorta.—A highly interesting pathological preparation exhibiting a false aneurism with obliteration of the aorta, was communicated to the Philadelphia College of Physicians at their meeting on the 1st of February last, by Dr. West, with the following history, which we copy from the Transactions of the College.

"I. G., an Italian by birth, and by occupation a cabinet-maker, aged 32 years; 5 feet 6 inches high; remarkably muscular and athletic; with the superior half of his body more developed than the lower; was taken on the 9th of January last, at noon, with great pain and distress in the chest, in consequence of which, my attendance was demanded in great haste.

"The attack, which was represented by the messenger as *colic*, had seized him suddenly, the pain being attended with great nervous agitation and distress. On my arrival, the patient was lying *quite flat* on his back in bed, complaining of great pain in the cardiac region, but without any marked difficulty of breathing, and with no particular disturbance of the circulation, so far as was discoverable by the pulse. His countenance indicated suffering, but it was not flushed nor darkly suffused. No physical exploration, unfortunately, was made, his attack being regarded as chiefly nervous in character, and induced, it was thought, by great bodily and mental fatigue, incident to the recent illness of his wife, who had been removed but a week before, as a patient into the Insane department of the Pennsylvania Hospital. During her illness and afterwards, I had had occasion to see the husband frequently, but had never heard him complain of anything; he appeared, on the contrary, to be in the enjoyment of robust health.

"After his death, I learned that, on last New Year's Eve, he had been taken suddenly, whilst at a billiard room, with dyspnœa or orthopnœa, of such severity as to require him to seek support with his hands upon the window-sill, where he might also enjoy a larger supply of fresh air. This attack lasted for several minutes, but when it had passed over he was able to walk home without assistance. Agreeably to the views entertained of the nature of his affection, he was ordered to take portions of a mixture of Hoffman's anodyne, tinct. assafœtidæ and camphor: to have sinapisms applied to the ankles, and to maintain perfect repose both of body and mind.

"At 10 P. M. I found him much relieved of his dyspnœa and general distress, but he still complained of pain about the heart. At this visit he was lying flat on his left side in bed, and without any apparent embarrassment either of the respiration or circulation. His friends, considering him much better, had left him for the night. The next morning he arose as usual and took his breakfast; shortly after this he said to a friend who had called to see him, that he wished the Doctor could relieve him of 'this pain,' indicating, at the same time, its seat, by placing his hand over the heart. He had scarcely uttered these words when he suddenly fell on the floor and expired.

"*Autopsy*—Seven hours after death. Muscular system everywhere much developed; no congestion of the cutaneous surface. On exposing the interior of the chest, the pericardium, in its right half, was found deeply ecchymosed; within this sac was effused a pint of blood, fluid and coagulated, in about equal proportions. On removing this blood, an aneurismal tumour of the aorta was discovered, extending from the origin of this vessel to the point at which the great vessels are given off from it. The large veins were all turgid with blood. The aneurism was both *true* and *false* in its character, being constituted by dilatation of the aorta in all its coats, and also, by the expansion of its fibro-serous or pericardial investment; this latter membrane was much thickened, but not otherwise changed in structure, having been detached from the whole surface of the vessel, throughout the extent already mentioned, viz., from its origin at the heart to the great vessels springing from its arch, forming in this way, the *external* or *false* aneurismal sac. This latter was capable of containing at least half a gill of blood. The pouch of the aorta, formed by its dilatation, would have lodged a small hen's egg. The external sac displayed, at the distance of an inch from the heart, an opening or slit, about six lines in extent, which gave issue, finally, to the blood into the general cavity of the pericardium.

"The aorta was reduced, at the point of dilatation, to the thickness of parchment, but was in no other way changed in structure. This artery, in the whole space comprised by the origins of its great vessels, did not exceed in capacity the left carotid. Upon the superior semi-circumference of the aorta, and at the distance of an inch from its valves, which by the way were only two in number, existed an irregular opening, of about ten lines in diameter, with torn, fringed edges. The point of rupture, for such was the character of this opening, bordered immediately upon the heart. No morbid deposit was found in the coats of the aorta, nor did they present, in the neighbourhood of the rupture, any other unnatural appearances than those of thinness and dilatation. These latter changes, it is presumed, were occasioned by the constant obstruction to the course of the blood, interposed by the peculiar condition of the aorta now to be described. This latter constituted the most interesting feature in the morbid anatomy of the case. On tracing the aorta beyond the origins of the great vessels, its cavity was found to be *entirely obliterated*, at a point immediately beyond or to the left of the ductus arteriosus, the remains of this latter vessel existing in the form of a ligamentous-like cord. The aorta presented at the point of obliteration, a well-defined and regular contraction, which looked exactly as if it had been produced by a ligature thrown around the artery, the closure of its cavity being occasioned simply by the approximation of its sides. No tumour or any other source of compression existed either at, or in the neighbourhood of, the stricture. Beyond this, the vessel immediately resumed very nearly its natural dimensions, and so continued throughout its course. It gave origin, in its whole length, to the usual branches; the upper pair of intercostals coming off immediately below the stricture.

"The blood, therefore, in order to reach these vessels, was obliged to take a very circuitous route, viz., from the aorta into the subclavians, thence, as will be seen, through the internal mammaries and epigastrics, to the external iliacs, and finally, from these latter it had to *pass up* the aorta towards the heart, thus reversing entirely the natural currents. The great power of the heart in propelling the blood is well illustrated by the present case.

"The large vessels springing from the arch of the aorta were much enlarged in capacity, especially the subclavians, which, as already intimated, were chiefly instrumental, by means of the internal mammaries and other branches, in keeping up the circulation between the heart and lower parts of the body. All the subclavian branches were increased in number and capacity, and so also were the vessels from below, with which they freely inosculated. The heart was generally enlarged and its walls thickened, but in neither of these respects to any remarkable extent. The internal mammary arteries, which pursued their course along the thoracic parietes in a *very tortuous* manner, were fully as large as the external iliacs, and so were the epigastric arteries; these vessels, viz., the mammaries and epigastrics, as already stated, constituting the main channels for keeping up the connection of the circulation above and below the aortic stricture.

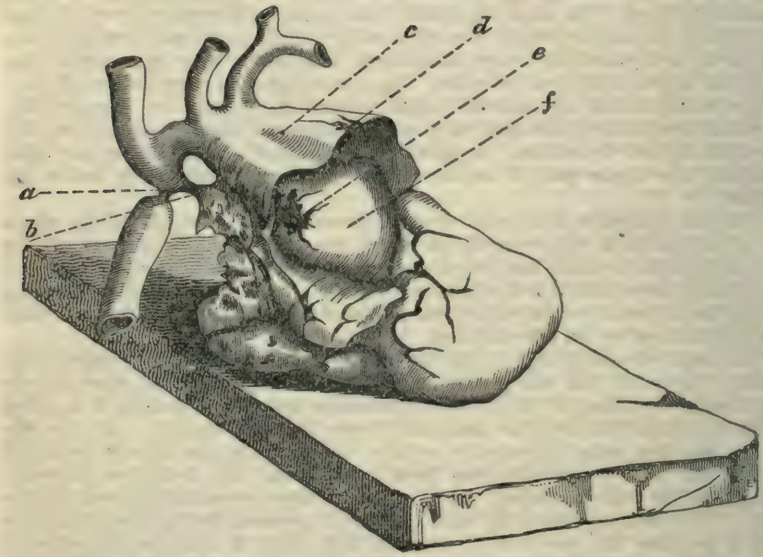
"In regard to the obliteration of the aorta, the question at once arises, was it not, in all probability, congenital? Such, we believe, to have been the fact, since it can hardly be imagined that the walls of this vessel, at any time after birth, could have commenced and maintained the close approximation necessary to ensure entire occlusion, without the aid of some extrinsic compulsory force, and nothing of this kind was revealed by dissection. We leave to the surgeon to determine the value of such cases in its bearing upon the operation for tying the aorta.

"Independently of its abnormal anatomy, the case is interesting in a pathological point of view, as exhibiting the want of relation between the morbid lesions found after death, and the *rational* symptoms exhibited by the patient during life.

"The physical signs, had they been consulted, might have revealed the aneurismal character of the disease, though they could not possibly have instructed us how to avert the necessarily fatal result. During the last week of his life, the patient had been constantly under our notice, and yet within this period, he had never, we believe, complained of the slightest feeling of indisposition. The dilatation of the aorta, to a greater or less degree, had no doubt existed for a long period, probably from birth; but of this we cannot be certain. The period, however, at which the blood found its way through the ruptured aorta into the external aneurismal sac, may be pretty satisfactorily conjectured, we think, by reference to the symptoms of the case. Was not the dissection of this fibro-serous covering of the aorta, by the gradual escape into it of the blood, the cause of the severe local pain in the chest felt by the patient within such circumscribed limits, and which, it will be recollected, was the prominent, indeed the only marked symptom?

Such, we conceive, would be a natural consequence of the disruption of this fibro-serous covering of the aorta, from its close attachment to the vessel. Owing, too, to the firmness of this connection, the formation of the external sac must have been very gradually accomplished, and unattended therefore, with any marked sensation on the part of the patient, until by its great distension it began to give rise at times to the pain complained of. The bursting of the external aneurismal sac was, of course, the immediate cause of the rapidly fatal result.

"The annexed drawing presents a very faithful representation of the aneurism after its rupture, and the contraction and obliteration of the aorta."



a. Point of stricture of the aorta.
b. Remains of ductus arteriosus.
c. External aneurismal sac.s
d. Opening of external sac.
e. Seat of rupture of the aorta.
f. Aorta dilated.

Case in which a Corpus Luteum in Process of Formation was found coinciding with Menstruation. (*Charleston Medical Journal*, Jan. 1848.)—Dr. Myddleton Michel, in an interesting article "On the Dependence of Menstruation upon the Development and expulsion of Ova," relates the following case in which he found a corpus luteum in the process of formation, coinciding with menstruation.

The subject of this case was a woman convicted of murder, and executed on the 10th of Sept., 1847. At the post-mortem examination which was conducted by Drs. Gaillard, De Saussure and Cain, Dr. Michel requested that the internal organs of generation should be closely inspected.

"Upon the removal of the uterus and its appendages," says Dr. M., "we remarked that there was no perceptible increase of size in the parts, though evident signs of congestion were detected, particularly in the tubes. The mouth of the uterus was slightly opened, tumefied, and its orifice dripping with blood. A vertical incision being made through the organ, the internal surface was found coated with blood, though the congestion of its mucous lining membrane was particularly confined to the upper part, about the entrance of the tubes. The stroma of the ovary of the right side presented a number of vesicles working their way towards the surface, and on the surface one or more vesicles, in progress of development, containing a quantity of clear fluid which was ejected with much force as they were opened. In the ovary of the left side several others were also present, but on the anterior surface we discovered a ruptured Graafian vesicle, whose orifice was partially closed by a clot of blood. This was evidently the one which had just discharged its ovulum. But being unprovided with the proper instruments, by the mutual suggestion of Dr. Gaillard and myself, I took this rare specimen with me to examine it carefully.

"I apprehend I can clearly establish, from the condition in which I found the vesicle, that Jane was not pregnant, and that menstruation had only begun a day or two. She was incarcerated some weeks previous to her execution, and her anxiety and suspense before she was apprehended, incline one to believe that her every thought must for some time have been directed to her approaching fate. But a better argument is furnished by the vesicle in question, for its rupture had positively just occurred, and here are the proofs: the opened vesicle was only partly closed by a clot of blood; the granular membrane surrounded this, even protruding through the opening. Under the microscope a fragment of this membrane exhibited its usual appearance of little hexagons arranged like mosaic work. I called the attention of Drs. R. Motte and Hunt to this membrane, who were present when I examined it. Cutting through the vesicle, I found its large cavity filled with the clotted blood which is the immediate cause of its rupture, and removing this coagulum, the inner tunic displayed great vascularity, its vessels ramifying over its surface like the artery on the retina. This membrane was not yet folding to constitute the corpus luteum.

"To those acquainted with the subject, it will be plain that rupture had recently occurred, and consequently that the ovum had not long escaped. I therefore diligently searched for the egg, knowing that if discovered, this would be the only case of the kind recorded. I was not fortunate in the attempt; the egg was in the tubes, but these were so corrugated (a condition in which all the other organs of like structure participated as perhaps the result of strangulation), that it was impossible to open them. The surface of the uterus was then carefully inspected with a strong lens, but nothing was discovered. The mucous membrane was not hypertrophied, neither were the uterine crypts nor glands visible as I have seen them during this period. I therefore conclude from this point, associated with the fact of the congestion being greatest at the entrance of the tubes, that menstruation had just commenced, and finally that this excitement commences in the ovaries, passes next to the tubes, and then encroaches upon the surface of the uterus. This last remark perhaps is worthy of notice, as I believe it has never been expressed."

Fracture of the Neck of the Femur within the Capsule—bony union.—Dr. N. W. Condit relates in the *New Jersey Medical Reporter* (April 1848), a case of fracture of the neck of the femur occurring in a gentleman over 80 years of age. The accident happened in May, and the patient died early in the following November. The following were the *post-mortem* appearances.

"The muscles and all the structure about the cervix-femoris were more pale than usual, and scarcely gave out any blood upon being cut into. The capsular ligament was entire, giving no appearance of having been lacerated; its texture was somewhat thickened. The ligamentum-teres was in a state of vascularity, which gave it about the colour of the muscles around the joint, though it retained its wonted firmness and strength. The acetabulum was normal in appearance. The neck of the femur was shortened, and on opening the capsule the fracture was discovered wholly within it. The head of the bone had been broken across transversely, exactly at its point of union with the neck, and about two lines from the bony edge of the acetabulum. The ridge characteristic of the seat of fracture had been thrown out, and the re-union was firm for rather more than three-quarters of the circumference of the bone. The limb having been drawn up by the contraction of the muscles, a considerable angle was formed by the head and neck at their point of juncture, but they were as firmly united by osseous formation as if they had never been separated. On the upper side, where the fractured edges were not in apposition, union was not yet complete, but ossification was going on upon all the broken surface, and had the patient lived a few months, would doubtless have been perfected. Could the state of the injured part have been by any means ascertained, and had not the condition of the ankle forbidden it, the patient, I think, might safely have walked; there was sufficient firmness at the fracture for the limb to have contributed its share of support to the trunk. From a fear lest some accident should befall the specimen in handling it, I left it with a mechanic to have the head protected by a covering of wire. He placed it for safe-keeping in a desk in his room, belonging to another man, who removing the desk in his absence, threw out the bone, supposing it to be of no value, and though diligent search was made, it was not recovered. I had the preparation in my possession for two or three years, and during that time it was shown to many members of the profession, who expressed but one opinion, that it was a case in which a *complete fracture entirely within the capsule was re-united by ossification.*"

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Spina Bifida Treated by Injection of the Tincture of Iodine.—Prof. D. BRAINARD relates (*Illinois and Indiana Med. and Surg. Journ.*, Jan. 1848), a case of spina bifida treated with injection of tincture of iodine. The patient, a girl of 13 years of age, had a tumour at the top of the sacrum nine inches in circumference and about three in height, with thin walls. She had been paralytic in the lower members, but within three years had acquired a partial use of them. She was idiotic, and passed both the feces and urine without regard to place. From neglect of cleanliness, numerous ulcerations and large cicatrices had, from time to time, been formed upon the pelvis and thighs.

Under these almost hopeless circumstances, Dr. B. determined to inject into the sac a solution of iodine, with a view of exciting inflammation and procuring absorption. This was done on the 2d Dec. 1847, in the following manner:—A small puncture was made with the lancet on the sound skin about half an inch from the base of the tumour and a trochar of the size of a common knitting needle carried obliquely into the sac. Through the canula of this a solution of gr. j of hyd potass. with gr. ss of iodine in fʒi of water, was thrown into the sac and the instrument withdrawn. A sharp pain followed, which soon subsided. Compresses and a bandage were applied to prevent the escape of the fluid, and the child was laid in bed. There succeeded redness, heat and tension of the tumour with tenderness to the touch and some febrile symptoms, for which a cathartic was administered and evaporating lotions applied to the part. In the course of a week these symptoms subsided, and the tumour became soft, yielding, and diminished in size. Compression by means of a roller around the pelvis was then applied, and kept up with as great degree of force as could be borne, but the filthiness of the patient and her indocility prevented this from being applied with regularity. It was frequently removed for twelve hours or more at a time. Still it diminished, and on the 27th Dec. was about half its former size.

"At this time a second injection was used of half the strength of the first. This produced but little heat or pain, and the compression was continued. On the 15th Jan. 1848, the fluid was so far absorbed as to render it easy to press it down almost to a level with the surrounding skin. A spring truss was then substituted, and at the present time the sac lies in wrinkles, the bony opening can be distinctly felt, and there is no increase of swelling when the pressure is removed. Recently there has been manifested a decided improvement in the intellect of the child; the other difficulties remain the same; but with the removal of the cause, the partial paralysis will doubtless gradually disappear. The retention of the natural evacuations must depend upon the development of the intelligence, and the gaining of a control over the voluntary muscles. In its present condition, this case shows that the injection of a solution of iodine, followed by suitable treatment, is capable of curing an ancient case of hydrorachitis, and (so far as a single case can be taken as a guide) with but little danger. Further experience will be required to determine the strength and quantity of the medicine to be used, the frequency of the repetitions; in younger subjects than this, it is obvious that the dose employed should be not more than a fourth of that used at first in this case."

This certainly will be considered by most surgeons an extremely hazardous proceeding, and in its extenuation Dr. B. says "that a number of facts have, within the last few years, come under our observation, tending to show that serous membranes are, when filled with serum, much less disposed to inflammation than when in a healthy state. Experiments are required to show which among the astringent and stimulating fluids can be brought in contact with them with least danger; meanwhile the safety with which solutions of iodine may be thrown into the large articulations, into the sac of a congenital hernia, and in some instances into the peritoneum, and in this case into the arachnoid membrane, will free us from the charge of presumption in suggesting that it, or some other solution, may be worthy of trial in those cases of hydrocephalus, ascites and hydrothorax, which are hopeless under ordinary treatment."

Foreign Body in the Trachea—Tracheotomy—Cure. By WM. DAVIDSON, of Madison county, Ind. (*Western Lancet*, May, 1848.)—The subject of this case was a child four years of age, into whose trachea a grain of corn had slipped. When seen by Dr. Davidson, half an hour after the accident, the child presented the following symptoms:—"Distressing and prolonged paroxysms of cough, terminating in emesis, and resembling in character cynanche tracheitis; indeed, so much so, that, without the previous history of the case, they might, even by experienced men, be readily mistaken for this disease; deep and laboured inspiration, with a purple countenance; the pulse slightly accelerated. Finding that the respiration became gradually easier, the periods of cough more distant from each other, and that the parents were much averse to an operation, it was resolved to allow the patient to rest, and, if possible, to obtain some sleep." During the night the patient slept for some hours, and the next day the symptoms were much ameliorated. The following day, however, every symptom became aggravated; "the cough was constantly present; inspiration appears to be painful, and made with much effort; countenance sunken, and of a leaden hue; the whole body bathed in a cold clammy perspiration.

"For the first time a foreign substance could be distinctly heard, during respiration, to pass up and down the trachea. It now became abundantly manifest, that suffocation was impending, and that without a resort to tracheotomy, dissolution was not far off. Thirty drops of chloroform, poured on a handkerchief, and laid over the nose and mouth of the patient, produced in less than a minute an unconscious state. Dr. D. immediately commenced the operation by an incision, a line or two above the cricoid cartilage, and extending downwards, in front of the trachea, for about two inches. In consequence of considerable venous hemorrhage, though the trachea was soon exposed, a half hour elapsed before an opening was made into it. At the end of that time, hemorrhage having ceased, four rings of the windpipe were divided, when, upon the first expiration, attended by a cough, a large sized grain of maize, which already showed signs of germination, was immediately ejected with considerable force.

"The edges of the wound were brought together by adhesive strips: and the child recovered without the appearance of any untoward symptoms.

"During all this time the patient was more or less under the influence of chloroform, which, of course, was renewed from time to time, as symptoms of returning consciousness made themselves apparent."

"Doubts," Dr D. remarks, "might suggest themselves to the minds of many, as to the propriety of using chloroform in tracheotomy, from a dread that its sedative influence on the eighth pair would be such as to prevent coughing—an act almost essential to the expulsion of a foreign body from the trachea. I confess that I participated in these fears, which the event proved to be groundless; and it was only at the solicitation of Drs. Holcombe and Hodges, that I was induced to give chloroform a trial. No one but he who has operated on the trachea, with and without the chloroform, can sufficiently appreciate the value of this agent in tracheotomy. Without chloroform, in addition to the struggles and resistance which the child offers in ordinary cases, there is superadded, from the loud cries, alternate elevation and withdrawal of the trachea to a considerable depth. All those inconveniences are avoided with its use, and the embarrassments to be encountered are only such as appertain to an operation in any other region of the body."

Expulsion of two Fœtuses of unequal size at the same time. (*Charleston Med. Journ.*, Jan., 1848.)—Dr. ELIAS HORLBECK relates the following interesting case, to which he was called on the 27th of June, 1847.

The patient, a coloured woman, had passed two menstrual periods, and was supposed to be about two months advanced in pregnancy. After undue exertion, she was seized with the most profuse flooding, which was arrested by the use of appropriate measures, and the woman made a rapid recovery. Dr. H. concluded that the product of conception had been lost, as he had never seen a case in which there was such profuse flooding where the fœtus was preserved.

The patient afterwards suffered from occasional small hemorrhages, until Dr. H. was again called to see her, Oct. 16th, three months and nineteen days after the first attack, with profuse flooding, which had commenced two days previously. She stated that she had increased in size and in the regular course; had felt the movement of the child; that her breasts and abdomen had enlarged with all the other symptoms of gestation. The os uteri was open, pains were occurring at regular intervals, and things had gone so far that Dr. H. administered ergot to hasten the discharge of the embryo; after the first dose a well grown fœtus of between five and six months was expelled, which, her mistress stated, palpitated some time after its birth. The flooding was now checked, and the placenta was in the course of the evening discharged. On dissection it exhibited the following appearances. The placental mass was of considerable size, having a large ruptured sac on one side, lined with the amnion, from the centre of which sprung the umbilical cord. The maternal surface of the whole mass presented a fresh appearance, as if just separated from the uterus; on close examination, it could be divided into two unequal masses, connected with the smaller of which, was perceived a smaller fœtus enveloped with its usual coverings. The transparent amniotic covering containing a clear fluid, in which was floating a fœtus some seven or eight lines in length. The sac being opened, the embryo was recognized sound, fresh and plump and life-like in its whole appearance, presumed from its development to be about six weeks old. The features of the face, such as the eyes, mouth and nose, were distinctly visible, its thoracic and abdominal members about two lines in length, its abdomen completely closed. The umbilical vesicle was distinctly visible and filled with fluid. The cord had no swellings or bulgings in its course, but was of the same size throughout.

Abnormal Distribution of the Thyroid Arteries.—Prof. James Blake describes in the *St. Louis Med. and Surg. Journ.* (June 1848), the following case of abnormal distribution of the thyroid arteries, which is interesting from the circumstance that in the subject in which it occurred, neither the operation of tracheotomy nor laryngotomy could have been performed without great danger of sacrificing the life of the individual. The subject in which it occurred, was a male about forty years of age, brought into the dissecting room of the St. Louis University, during the past session. The first anomaly that presented itself on dissecting the arteries going to the head and neck, was that of a considerable artery about the size of a quill, arising from the anterior and superior of the innominata, passing upwards and crossing the trachea about three-quarters of an inch above the sternum. After proceeding about two lines beyond the mesial line, it again turned to the right and crossed the mesial line about a quarter of an inch before the isthmus of the thyroid body, and proceeded to divide into branches along its lower edge on the right side.

On dissecting the superior thyroid arteries, it was found that the artery of the right side arose from the external carotid, at the place where it is generally found; but here it was seen to be much larger than usual; it proceeded downwards to the upper and outer angle of the thyroid body, but instead of dividing into its terminal branches, as it generally does, it turned forwards and to the left, running along the upper edge of the cricoid cartilage, or between it and the thyroid cartilage, and lying on the crico-thyroid muscle; it continued this course until it passed rather beyond the mesial line, crossing the crico-thyroid ligament. During its course, it sent branches downwards to the upper edge of the right side of the thyroid body, and the isthmus and its terminal branches were distributed to the left lobe of the thyroid body. The artery where it crossed the crico-thyroid ligament was as large as a crow-quill; there was no large anastomotic branch uniting with the superior thyroid artery of the opposite side, which was rather smaller than natural. The inferior thyroid arteries were natural, but that of the right side rather larger. The thyroid body was rather above the natural size, and somewhat more dense in its structure, and less red than it is generally found—the isthmus was broad, extending as far as the lower edge of the cricoid cartilage. From the above description it is evident that neither the operation of tracheotomy nor laryngotomy could have been performed in this subject without incurring the greatest risk of wounding an artery, the bleeding from which might, under the circumstances, even have led to a fatal result.

Iodide of Potassium a Cure for Nurses' Sore Mouth.—Dr. H. D. Holt states (*New York Journ. of Med.*, May 1848), that every case he has treated of this disease "has yielded within forty-eight hours to the use of iodide of potash in gr. v. doses three times a day."

Geranium Maculatum a cure for Mercurial Salivation.—Dr. Geo. M. Maclean has used in one case of mercurial salivation, he says, (*New York Journ. Med.*, May 1848,) an infusion of the Geranium Maculatum as a lotion with speedy and entire relief.

Case of Chronic Tetanus successfully treated by Ether Inhalation.—Dr. Isaac Parrish read to the Philadelphia College of Physicians, March 7th, (*Trans. Coll.*, vol. ii. No. 4,) an interesting case of phlegmonous erysipelas, commencing in the finger and extending up the hand and arm. Rigidity of the jaws supervened on the sixth day, followed by shooting pains up the limb to the neck and jaws. The preparations of opium, assafœtida, &c., having failed to make any impression, the inhalation of ether was tried on the seventh day, and it produced a most favourable anodyne effect, causing several hours refreshing sleep. The inhalation was repeated on the eighth day also with a favourable effect. Convalescence from this time was confirmed, and the patient recovered.

American Medical Association.—A full abstract of the proceedings of the Association, at its first annual meeting held in Baltimore in May last, having been given in the Medical News and Library for June, it is sufficient at present to state that the meeting was a most delightful one, that the deliberations were characterized by great harmony, and that the utmost zeal was manifested for the advancement of the profession. The volume of Transactions, which is now in press, will soon be published, when we shall hasten to lay before our readers an account of the highly interesting reports and memoirs read to the Association.

The following are the officers and standing committees for the present year:—

President.—Dr. A. H. Stevens, of N. Y.

Vice Presidents.—Drs. John C. Warren, Mass., Samuel Jackson, Pa., W. M. Awl, Ohio, and Paul F. Eve, Ga.

Secretaries.—Drs. Alfred Stillé, Pa., and H. I. Bowditch, Mass.

Treasurer.—Dr. Isaac Hays, Pa.

Committee of Arrangements.—Dr. Jacob Bigelow, *Chairman.*—Drs. E. Hale, Z. B. Adams, J. C. Dalton, John Ware, O. W. Holmes, and H. I Bowditch, Boston.

Committee on Medical Sciences.—Dr. L. P. Yandell. Ky., *Chairman.*—Drs. S. M. Smith, Columbus, O., J. F. White, Cin., E. S. Carr, Vt., Samuel Jackson, (late of Northumberland.) Pa., G. S Upshur, Va , and S. H. Harris, Tenn.

Committee on Practical Medicine.—Dr. D. F. Condie, Penn., *Chairman.*—Drs. W. W. Gerhard, Pa., M. Clymer, Philada., John Ware, Boston, Grafton Tyler, D. C., J. Fithian, N. J., and M. Z. Kreider, Ohio.

Committee on Surgery—Dr. N. R. Smith, Md., *Chairman.*—Drs. H. F. Askew, Del., W. H. Baxley, Balt., J. Knight, Conn., J. Pancoast, Phila., H. H. McGuire, Va., and A. B. Shipman, Ind.

Committee on Obstetrics.—Dr. B. R. Welford, Va., *Chairman.*—Drs. J. F. Peebles, Va., Noble Young, D. C., Z. B. Adams, Mass., C. R. Gilman, N. Y., J. A. Eve, Ga., and R. Rouse, Ill.

Committee on Medical Literature.—Dr. J. P. Harrison, Ohio, *Chairman.*—Drs. G. Fries, Ohio, W. G. Edwards, Ill., W. M. Latta, Ind., O. W. Holmes, Mass., R. S. Stewart, Md., and J. M. Thomas, D. C.

Committee on Medical Education.—Dr. F. Campbell Stewart, N. Y., *Chairman.*—Drs. John Watson, N. Y., J. M. Smith, N. Y., A. L. Pierson, Mass., S. H. Pennington, N. J., P. C. Gaillard, S. C., and D. Meeker, Ind.

Committee on Publication.—Dr. I. Hays, Phila., *Chairman.*—Drs. A. Stillé, Phila., H. I. Bowditch, Mass., D. F. Condie, Phila., J. R. W. Dunbar, Md., B. F. Barker, Conn., and J. Jump, Del.

The next meeting of the Association will be held in Boston on the first Tuesday in May.

UNIVERSITY OF PENNSYLVANIA.

At a Public Commencement held April 8th, 1848, in the Musical Fund Hall, Locust Street, the Degree of Doctor of Medicine was conferred by the Rev. John Ludlow, D.D., Provost, upon the following gentlemen; after which an Address was delivered by James B. Rogers, M. D., Professor of Chemistry.

NAME.		STATE.	SUBJECT OF ESSAY.
Abercrombie, Charles T.	Russel,	Ala.,	Cataract.
Alexander, John B.	Elbert,	Ga.,	Dysmenorrhœa.
Anderson, James H.	Talbot,	Md.,	Different modes of dying.
Barnett, A. W.	Wilks,	Ga.,	Inflammation.
Barton, Howard T.	Fredericksburgh,	Va.,	Dysentery.
Beale, C. William	Orange,	Va.,	Congestive Remittent Fever.
Benton, John H.	Jefferson,	N. Y.,	Induction of Premature Labour.
Berluchy, Samuel L.	Adams,	Pa.,	Vis Medicatrix Naturæ.
Bieber, Edwin H.	Berks,	Pa.,	Digestion, &c.
Blanding, A. Ormsbee	Bristol,	Mass.,	Medical Topography.
Brooks, Robert	Stokes,	N. C.,	Melæna.
Brown, Samuel D.	Kings,	Nova Scotia,	Digestion.
Bruce, George W.	Frederick,	Va.,	Acute Rheumatism.
Bryant, John D.	Philadelphia,	Pa.,	Phthisis Pulmonalis.
Buckman, Edwin D.	Bucks,	Pa.,	Dysentery.
Burgess, John	Allegheny,	Pa.,	Animal Heat.
Burton, George W.	Rutherford,	Tenn.,	Cholera Infantum.
Busey, Samuel C.	Montgomery,	Md.,	Cholera Infantum.
Campbell, Edward M.	Abingdon,	Va.,	Circulation of Blood.
Carter, Cassius	Fairfax,	Va.,	Remittent Fever.
Chamberlain, George G.	Philadelphia,	Pa.,	Puerperal Convulsions.
Chandler, Chas. Quarles	Louisa,	Va.,	Duties of the Physician.
Christian, Edmund	New Kent,	Va.,	Dysentery.
Claiborne, James W.	Richmond,	Va.,	Insanity.
Clanton, S. W.	Sumpter,	Ala.,	Cynanche Trachealis.
Coffey, Henry T.	Blair,	Pa.,	Importance of Cultivating Medicine as a Science.
Comegys, Cornelius G.	Kent,	Del.,	Hemorrhage.
Cooper, C. Campbell	Philadelphia,	Pa.,	Electricity the Nervous Force.
Davis, Uriah Q.	Union,	Pa.,	Intermitting Fever.
Davis, William H.	Granville,	N. C.,	Febris Intermittens.
Dawson, John	British Burmah,	E. Ind.,	Theory of Cholera—Asiatica, Epidemica.
De Jarnette, Joseph P.	Antauga,	Ala.,	Bilious Remittent Fever.
De Jarnette, Joseph S.	Spottsylvania,	Va.,	Modus Operandi of Cold.
Drake, Osborne L.	Powhatan,	Va.,	Urine, with its Pathological changes.
Dungan, Jacob S.	Philadelphia,	Pa.,	Respiration.
Duvall, Lloyd T.	Frederick,	Md.,	Dyspepsia.
Duvall, Marius	Annapolis,	Md.,	Modus Operandi of Medicines.
Edgeworth, S. Carpenter	Houston,	Ga.,	Congestive Fever.
Edmunds, Benjamin C.	Halifax,	N. C.,	Asiatic Cholera.
Ely, Edward	Bucks,	Pa.,	The Vital Functions, &c.
Fairlamb, George A.	Centre,	Pa.,	Red Disc of Blood.
Farley, George S.	Montgomery,	Ala.,	Pleuritis.
Farrar, John O. F.	St. Louis,	Mo.,	Dysmenorrhœa.
Farrar, John S.	Howardsville,	Va.,	Cynanche Trachealis.
Fassitt, Louis	Philadelphia,	Pa.,	Theory and Art of Prescribing.
Filbert, Charles K.	Berks,	Pa.,	Dysenteria.
Forney, Jacob	Huntingdon,	Pa.,	Leucorrhœa.
Gambel, William	Philadelphia,	Pa.,	Organic Forms or Species.
Gayley, James F.	Richmond,	Va.,	Etiology of Intermittent and Remittent Fever.
Getty, Thomas Murray	Elizabeth,	Va.,	Colica Pictonum.
Gibson, Henry C.	Cooper,	Mo.,	Bilious Remittent Fever.
Gleaves, Samuel C.	Buffalo Ford,	Va.,	Colica Pictonum.
Goodwyn, John P.	Dinwiddie,	Va.,	Circulation of the Blood.
Gould, P. F.	Nashville,	Tenn.,	Congestive Fever.

NAME.		STATE.	SUBJECT OF ESSAY.
Green, Charles D. Jr.	Smyrna,	Del.,	Reflex Function of the Spinal Cord.
Grinnan, Andrew G.	Fredericksburgh,	Va.,	Dyspepsia.
Gustine, John W.	Juniata,	Pa.,	Acute Enteritis.
Hale, Elias W.	Mifflin,	Pa.,	Pneumonia.
Hall, George D.	Gaston,	Ala.,	Uterine Hemorrhage.
Halsey, R. S.	Dinwiddie,	Va.,	Acute Rheumatism.
Hamlet, John A.	Charlotte,	Va.,	Cholera Infantum.
Hamm, Samuel F.	Howard,	Mo.,	Typhoid Fever.
Harris, Charles M. B.	Philadelphia,	Pa.,	Cynanche Trachealis.
Harvey, Richard H.	Gibson,	Tenn.,	Pneumonia.
Haskins, William D.	Oakly,	Va.,	Cause of Disorder in Pregnancy.
Hawes, Ellington C.	Lincoln,	Ga.,	Heat as a Vital Stimulus.
Heger, Anthony	Vienna,	Austria,	Ethyl.
Heiskell, Milton Y.	Morganton,	Tenn.,	Intermittent Fever.
Hewson, D. C.	New Orleans,	La.,	Fistula in Ano.
Heywood, Frederick	Worcester,	Mass.,	Gonorrhœa.
Hobson, A. W.	Clinton,	Ala.,	Treatment of Bilious Remittent Fever.
Hollinshead, Frank	Stroudsburg,	Pa.,	Cynanche Trachealis.
Hooper, William H.	Philadelphia,	Pa.,	Carcinoma.
Horsley, Frederick Cabell	Nelson,	Va.,	Scrofula.
Houston, James H.	Iredell,	N. C.,	Gastro Enteritis.
Huie, George William	Louisville,	Ky.,	Quantity of Blood in the Brain.
Hutchison, Ebenezer Nye	Cabarrus,	N. C.,	Physiology of the Encephalon.
Hutchison, Joseph C.	Cooper,	Mo.,	Staphyloraphy.
Hyland, Christopher H.	Princess Ann,	Md.,	Bilious Remittent Fever.
Jeffreys, Leonidas A.	Wake,	N. C.,	Febris Intermittens.
Jenkins, Foster J.		Mass.,	New Anæsthetic Agents.
Jones, Geo. Wymberley	Savannah,	Ga.,	Endosmose.
Jones, Walker F.	Gloucester,	Va.,	Bilious Remittent Fever.
Jones, W. A.	Greensborough,	Ala.,	Pulmonitis.
Kelley, William D.	Lebanon,	Tenn.,	Wounds of the Abdomen.
Kennedy, Alfred L.	Philadelphia,	Pa.,	Solubility of the Gases.
King, John S.	Franklin,	Pa.,	Hæmoptysis.
Kinloch, Robert A.	Charleston,	S. C.,	Temperature, as concerned in the Causation of Disease.
Knighton, Nicholas S.	Anne Arundel,	Md.,	Sulphate of Quinia.
Kollock, Cornelius	Cheraw,	S. C.,	Hemorrhagia Uterina.
Langhorne, Daniel A.	Campbell,	Va.,	Cynanche Trachealis.
Lemmon, Horatio S.	Fauquier,	Va.,	Epidemic Typhoid Fever.
Lemoine, Edwin S.	Petersburgh,	Va.,	Nourishment of Fœtus.
Lewis, James S.	Orangeburg,	S. C.,	Capillary Circulation.
Little, John Andrew	Delaware,	Ohio,	Cynanche Trachealis.
Lukens, Isaiah	Montgomery,	Pa.,	Phrenitis.
Macklin, Benjamin R.	Brunswick City,	Va.,	Hepatitis.
Manly, L. Cheves	Raleigh,	N. C.,	Dyspepsia.
Massie, William F.	Alexandria,	Va.,	Intermittent Fevers.
Mehaffey, William Kerr	Marietta,	Pa.,	Treatment of Syphilis.
Moore, Thomas	Philadelphia,	Pa.,	Tetanus.
Mosley, William A.	Lincoln,	Ga.,	Physiology of Digestion.
Mullen, John W.	Philadelphia,	Pa.,	Pneumonia.
M'Cabe, John	New Castle,	Del.,	Acute Hepatitis.
M'Kelvy, James B.	Columbia,	Pa.,	Pneumonia.
M'Mackin, William C.	Philadelphia,	Pa.,	Acute Iritis.
M'Reynolds, H. W.	Columbia,	Pa.,	Erysipelas.
Oliver, William W.	Madison,	N. C.,	Scarlatina.
Owen, John D.	Carthage,	Tenn.,	Retention of Placenta.
Pence, Philip	Pickaway,	Ohio,	Intermittent Fever of Pickaway.
Percivall, Charles Fred.	Frederick,	Md.,	Ulmus Fulva.
Person, Willie M.	Franklin,	N. C.,	Scarlatina.
Pillow, N. B.	Carthage,	Tenn.,	Pneumonia.
Pollard, James R.	Albemarle,	Va.,	Prolapsus Uteri.
Porter, Ransom N.	Franklin,	Mass.,	Treatment of Inflammation.
Pulliam, John Junius	Sommerville,	Tenn.,	Cholera Infantum.
Pumphrey, N. N.	Ohio,	Va.,	Effects of Light.
Purnell, Thomas H.	Benton,	Mo.,	Hepatitis.
Rhoads, Jacob	Northumberland,	Pa.,	Anatomy of Inguinal Hernia.
Rives, Nathaniel F.	Petersburgh,	Va.,	Spina Bifida.

NAME.		STATE.	SUBJECT OF ESSAY.
Roberts, A. V.	Scott,	Miss.,	Physiology of Menstruation.
Robins, S. W.	Wilcox,	Ala.,	Gonorrhœa.
Robinson, A. L.	Boon,	Mo.,	Typhoid Fever.
Robinson, Francis	Annapolis,	Nova Scotia,	Scrofula.
Rochester, Thomas F.	Rochester,	N. Y.,	Sulphuric Ether in Obstetric Practice.
Roscoe, John T.	Bertie,	N. C.,	Hepatitis.
Rose, John	Philadelphia,	Pa.,	Constitutional Peculiarities.
Rutherford, Levi	Dauphin,	Pa.,	Inguinal Hernia.
Saunders, William H.	Washington,	D. C.,	Pneumonia.
Scollay, Charles L.	Jefferson,	Va.,	Inhalation of Sulphuric Ether.
Seip, Amos	Northampton,	Pa.,	Peculiar form of Fever as it prevailed at the Glendon Iron Works, Northampton county.
Seymour, William P.	Troy,	N. Y.,	Scarlatina.
Shannon, David P.	Franklin,	Pa.,	Phthisis Pulmonalis.
Shelton, John B.	Clarksville,	Va.,	Displacement of the Uterus.
Shippen, Edward	Burlington,	N. J.,	Angina Pectoris.
Sill, Edward Jr.	Richland,	S. C.,	Scarlatina.
Smith, Booker F.	Campbell,	Va.,	Pneumonia.
Smith, George Hand	Rochester,	N. Y.,	Poisonous species of Rhus, inhabiting New York.
Smith, John A. P.	Northampton,	N. C.,	Febris Intermittens.
Smith, Milo	Hamilton,	Tenn.,	Marsh Miasma.
Sorrel, Francis Jr.	Chatham,	Ga.,	Tetanus.
Stevenson, Charles T.	Bridgetown,	Barbadoes,	Typhus Fever.
Stewart, James L.	Pittsburg,	Pa.,	Labour Præmaturans Artificialis.
Stout, Samuel H.	Davidson,	Tenn.,	Medical Topography of Tenn.
Stovall, S. B.	Lincoln,	Ga.,	Wounds of the Chest.
Taylor, J. Marcellus	Nash,	N. C.,	Cornus Florida.
Taylor, William T.	Philadelphia,	Pa.,	Food.
Taylor, William V.	Holly Springs,	Miss.,	Dysentery.
Thomas, William P.	Columbia,	Mo.,	Progress of Medicine.
Thomson, Charles R.	Orangeburgh,	S. C.,	Marsh Miasma.
Towler, Joseph M.	Columbia,	Tenn.,	Theory and Practice of Medicine.
Train, Arthur,	Kenawha,	Va.,	Acute Hepatitis.
Trueheart, Fayette D.	Henrico,	Va.,	Intermittent Fever.
Trugien, John W. H.	Norfolk,	Va.,	Human Eye.
Vasser, George W.	Monroe,	Miss.,	Hepatitis.
Wagner, Charles K.	Easton,	Pa.,	Cancer of the Stomach.
Walke, J. Wistar	Chesterfield,	Va.,	Enteric, or Typhoid Fever.
Ward, John	Fauquier,	Va.,	Physiology of Circulation.
Webb, James	Greene,	Ala.,	Menstruation.
Wellford, Armistead N.	Spottsylvania,	Va.,	Application of Ether to Surgery.
Wingfield, Charles L.	Albemarle,	Va.,	Irritable Uterus.
Wingfield, Thurmur H.	Norfolk,	Va.,	Acute Pleuritis.
Withers, Edward D.	Campbell,	Va.,	Morbus Brightii.
Wright, W. Roderick	Philadelphia,	Pa.,	Puerperal Fever.
Workman, Edward E.	Kershaw,	S. C.,	Inflammation.

The Degree of Doctor of Medicine was also conferred upon

Dr. David Caldwell, Greensborough, North Carolina,
" Alfred Wotkyns, Troy, New York, and
" John W. Gloninger, Lebanon, Pennsylvania.

At a Public Commencement held in July, 1847, the following gentlemen received the Degree of Doctor of Medicine.

NAME.		STATE.	SUBJECT OF ESSAY.
Brunson, Thaddeus W.	Macon,	Ala.,	Colica Pictonum.
Craig, James R.	Dinwiddie,	Va.,	Inflammation.
Davis, Ira S.	Greene,	N. C.,	Tertian Intermittent.
Dunn, Samuel W.	Pennington,	N. J.,	Asphyxia.
Jacoby, Leonard	Bristol,	Pa.,	Epilepsy.
Miller, Nathaniel	Providence,	R. I.,	Diabetes Mellitus.

TOTAL, 174.

THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FOR OCTOBER, 1848.

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ALFRED STILLE, M. D., *of Philadelphia.*

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TO READERS AND CORRESPONDENTS.

Our Montreal correspondent is informed that the publishers cannot furnish the first thirteen volumes of this Journal.

The initials W. P. should have been appended to the able review of Dr. Stillé's Elements of General Pathology, p. 377.

Credit should have been given to Dr. Hughes, and not to Dr. Easleman, for the statistical researches on chorea at page 454 of this No.

The following works have been received:—

Boa Vista Fever. Return to an Address of the Honourable the House of Commons, dated 4th February, 1848, for a copy of Dr. King's Report on the Fever of Boa Vista. London, 1848. (From Dr. McWilliam.)

Dr. McWilliam's Remarks on Dr. King's "Report on the Fever at Boa Vista," ordered, by the House of Commons, to be printed, 10th March, 1848. (From the Author.)

Principles of Medicine: comprising General Pathology and Therapeutics, and a brief general view of Etiology, Semeiology, Diagnosis, Prognosis, and Hygienics. By Charles J. B. Williams, M. D., F. R. S., &c. &c. &c. Edited, with additions, by Meredith Clymer, M. D., Fellow of Philad. Coll. Phys., &c. &c. &c. Third American, from the second and enlarged London edition. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

A Dispensatory, or Commentary on the Pharmacopœias of Great Britain (and the United States): comprising the Natural History, Description, Chemistry, Pharmacy, Actions, Uses, and Doses of the Articles of the Materia Medica. By Robert Christison, M. D., V. P. R. S. E., &c. &c. &c. Second edition, revised and improved, with a Supplement, containing the most important New Remedies. With copious additions, and 213 illustrations, by R. Eglesfeld Griffith, M. D., &c. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

Medical Chemistry for the Use of Students and the Profession: being a Manual of the Science, with its Applications to Toxicology, Physiology, Therapeutics, Hygiene, &c. By D. P. Gardner, M. D., formerly Prof. Chem. in Philad. Coll., &c. &c. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

A System of Human Anatomy, General and Special. By Erasmus Wilson, M. D., Lecturer on Anatomy, London. Fourth American from the last London edition. Edited by Paul B. Goddard, A. M., M. D., Prof. Anat. and Hist. in Franklin Med. Coll. With 251 illustrations by Gilbert. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

An Analytical Compendium of Various Branches of Medical Science, for the Use and Examination of Students. By John Neill, M. D., Demonstrator of Anat. in Univ. of Penna., &c., and Francis Gurney Smith, M. D., Lecturer on Phys. in Philad. Ass., &c. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

Medical Lexicon. A Dictionary of Medical Science, containing a concise Explanation of the various Subjects and Terms, with the French and other Synonymes, notices of Climate and of celebrated Mineral Waters, Formulæ for various officinal and empirical preparations, etc. By Robley Dunglison, M. D., Professor of the Institutes of Medicine, etc., in Jefferson Medical College, Philadelphia. Seventh edition, carefully revised and greatly enlarged. Philadelphia: 1848. Lea & Blanchard. (From the Publishers.)

Researches on the Chemistry of Food, and the Motion of the Juices in the Animal Body. By Justus Liebig, M. D., Prof. of Chem. in the Univ. of Giessen. Edited from the MS. of the author, by Wm. Gregory, M. D., Prof. of Chem. in the Univ. of Ed. Edited from the English edition by Eben N. Horsford, A. M., Rumford Prof. in the Univ. of Cambridge. Lowell: Daniel Bixby & Co., 1848. (From the Publishers.)

A Practical Treatise on the Diseases of Children. By J. Forsyth Meigs, M. D., Lecturer on the Diseases of Children in the Philad. Med. Association. Philadelphia, Lindsay & Blakiston, 1848. (From the Publishers.)

The Trial of William Freeman for the Murder of John G. Van Nest, including the Evidence and the Arguments of Counsel, with the Decision of the Supreme Court granting a New Trial, and an Account of the Death of the Prisoner, and of the Post-mortem Examination, &c. Reported by Benj. F. Hall, Counsellor at Law. Auburn: Derby, Miller & Co., 1848. (From the Publishers.)

Lead Diseases. A Treatise from the French of L. Tanquerel des Planches. With notes and additions on the Use of Lead Pipe and its Substitutes. By Samuel L. Dana, M.D., L. L. D., &c. &c. &c. Lowell: Daniel Bixby & Co., 1848.

A Practical Treatise on Poisons: their Symptoms, Antidotes, and Mode of Treatment. By O. H. Costill, M.D. Philadelphia, Grigg, Elliot & Co., 1848. (From the Author.)

The Principles and Practice of Medicine, in a Series of Essays. By John W. Hood, M.D. Philadelphia, Thomas, Cowperthwait & Co., 1848. (From the Author.)

Illustrations of Medical Botany: consisting of Coloured Figures of the Plants affording the important articles of the Materia Medica, and Descriptive Letter-press. By Joseph Carson, M.D., Prof. Mat. Med. in Philad. Coll. of Pharm., &c. &c. No. 5. Philadelphia, R. P. Smith, 1848.

A System of Clinical Medicine. By Robert James Graves, M.D., M.R.I.A., &c. &c. &c. With Notes and a series of Lectures, by W. W. Gerhard, M.D., Lecturer on Clinical Medicine in Univ. of Penna. Third American edition. Philadelphia, Ed. Barrington & Geo. D. Haswell, 1848. (From the Publishers.)

An Account of some of the Most Important Diseases incident to Women. By Robert Gooch, M.D. With illustrations. Second edition. Philadelphia, Ed. Barrington & Geo. D. Haswell, 1848. (From the Publishers.)

Die Krankheiten der Milz Eine Pathologisch-Therapeutische Abhandlung. Von Dr. C. B. Heinrich. Leipzig, 1847. (From Dr. Oppenheim.)

The Nature and Treatment of Deafness and Diseases of the Ear; and the Treatment of the Deaf and Dumb. By William Dufton, M.R.C.S. Philadelphia, Lea & Blanchard, 1848. (From the Publishers.)

Valedictory Address to the Medical Class and Graduates of the Indiana Medical College at the Public Commencement, Feb. 19th, 1848. By A. B. Shepman, M.D., Prof. of Surgery. Syracuse, 1848. (From the Author.)

Annual Report of the Regents of the University of the State of New York. Albany, 1848. (From Dr. T. R. Beck.)

A Complete Practical Work on the Nature and Treatment of Venereal Diseases and other Affections of the Genito-Urinary Organs of the Male and Female. Illustrated by a great number of beautifully Coloured Plates, and many finely executed delineations on Wood. By Homer Bostwick, M.D. New York, Burgess, Stringer & Co., 1848. (From the Author.)

A Treatise on the Nature and Treatment of Seminal Diseases, Impotency, and other kindred affections, with Practical Directions for the Management and Removal of the Causes producing them, together with Hints to Young Men. By Homer Bostwick, Surgeon. Second edition. New York, Burgess, Stringer & Co., 1848. (From the Author.)

Annual Report to the Managers of the Royal Edinburgh Asylum, for the year 1847. By David Skae, M.D., Physician to the Asylum. (From the Author.)

Analysis of Bladin Springs. By R. T. Brumley, Prof. of Chem., &c., Univ. of Alabama. Tuscaloosa, 1848. (From Dr. A. B. C. Dossey.)

An Address delivered before the Class of the Castleton Medical College, on the History of the Original Application of Anæsthetic Agents, May 17th, 1848. By E. R. Smilie, M.D. Boston, 1848. (From the Author.)

Report of the Medical Department of the University of Pennsylvania, for the year 1848; to the Alumni of the School. By the Medical Faculty. Philadelphia, 1848.

Catalogue of the Trustees, Officers, and Students of the Indiana Medical College, La Porte, Ia. Session, 1847–48.

Catalogue of the Second Session of the Memphis Medical College. Session 1847–48. Memphis, 1848.

Annual Announcement of the Medical Department of the St. Louis University. Session 1848–49. St. Louis, 1848.

Ninth Annual Announcement of the Baltimore College of Dental Surgery. Baltimore, 1848.

Annual Circular and Catalogue of the Medical Department of the University of Buffalo. Buffalo, 1848.

Annual Announcement of Cleveland Medical College. Session 1848–49. Cleveland, O., 1848.

College of Physicians and Surgeons in the City of New York. University of the State of New York. Catalogue of the Officers and Students of the College, and Annual Announcement of Lectures. 42d Session, 1848–49. New York, 1848.

Report of the Medical Missionary Society of China; the Fourth Report of the Ophthalmic Hospital, Canton, embracing the period from July 1, 1845, to Dec. 31, 1847. By Rev. F. Parker, M. D., &c. &c. Canton, 1848. (From Mr. R. P. Desilver.)

Report of the Secretary of State [New York] of the number of Births, Marriages, and Deaths, for the year 1847. (From Dr. T. R. Beck.)

The British American Journal of Medical and Physical Science. Edited by Archibald Hall, M. D., &c. &c. July, August, Sept., 1848.

Summary of the Transactions of the College of Physicians of Philadelphia. April to August, 1848, inclusive.

Revue Médicale Française et Etrangère. Par J. B. Cayol, Ancien Professeur, &c. &c. &c. Nov., Dec., 1847—Jan., Feb., 1848.

Gazette Médicale de Paris. Dec., 1847—Jan., Feb., March, April, May, 1848.

Annales de Thérapeutique Médicale et Chirurgicale et de Toxicologie. Publiées par M. le Docteur Rognetta, Mem. de l'Acad. des Sc. de Naples, &c. &c. Dec., 1847—Jan., Feb., March, April, 1848.

Journal de Médecine et de Chirurgie Pratiques à l'Usage des Médecins Praticiens. Par Lucas Championnière, D. M. P. Dec., 1847—Jan., Feb., March, April, May, 1848.

Journal des Connaissances Médico-Chirurgicales. Publié par le Dr. A. Martin Lauzer. Dec., 1847—Jan., Feb., March, April, May, 1848.

Journal des Connaissances Médicales Pratiques et de Pharmacologie. Dec., 1847—Jan., Feb, March, April, 1848.

Journal de Pharmacie et de Chimie par MM. Boullay, J. P. Boudet, Bussy, Soubeiran, Henry F. Boudet, Cap, Boutron—Charlard, Fremy et Guibourt, suivi d'un Compte Rendu des Travaux de Chimie. Par M. Charles Gerhardt. Dec., 1847—Jan., Feb., March, April, 1848.

Annales Médico-Psychologiques. Journal de l'Anatomie, de la Physiologie, et de Pathologie du Système Nerveux. Par MM. Baillarger, Cerise et Longet. Jan., March, 1848.

Revue Médico-Chirurgicale de Paris. Sous la Direction de M. Malgaigne, Chirurgien de l'Hôpital St. Louis, &c. May, June, July, 1848.

Zeitschrift für die Gesammte Medicin. Heransgegeben von F. W. Oppenheim. Dec., 1847—Jan., Feb., March, April, May, June, July, 1848.

Adolph Henke's Zeitschrift für die Staatsarzneikunde, fortgesetzt von Dr. A. Siebert, o-o., Prof. der Medecin in Jena. 37 Erg. Bd. 55, heft. 2.

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THE
AMERICAN JOURNAL
OF THE MEDICAL SCIENCES
FOR OCTOBER, 1848.

Art. I.—*Remarks on the Oxalate of Lime Diathesis, with Cases illustrative of the Disease.* By Charles Frick, M.D., of Baltimore.

During the past year, we have devoted a considerable portion of our time to an examination of the urinary secretion, and have been enabled by its assistance in a good many instances to make out a diagnosis when all other means failed. Some nine or ten of these were characterized by the presence of oxalate of lime, and from them we have selected the following cases. They are reported, in addition to what has been already written, for the purpose of showing the important aid that an examination of the urine often lends to diagnosis.

The frequent occurrence of this salt in the urinary secretion, in a comparatively limited number of observations, has led us to the conclusion that it is by far the most common abnormal deposit that is met with requiring a decided treatment, and at the same time that it is one of the most important of all the urinary diseases. It is important in the first place, from the obscurity of its diagnosis, so far as relates to general symptoms; for in all the cases that we have seen, the patients have either been treated previously for some other disease, or a microscopic examination of the urine has only been resorted to, because the ordinary means of diagnosis failed to account satisfactorily for the origin of the symptoms. It is important in the second place because it yields readily to treatment; all the cases we have seen having been either cured or much relieved when proper remedies were used. We are glad that we are able to add the testimony of these few cases in support of the large number collected by Dr. Golding Bird, proving the great frequency of this disease, and its comparative curability. Its prominent symptoms are all characterized by great nervous depression, and in every instance the patient's expression and appearance led to the suspicion, at the first interview, that he was suffering from seminal emissions.

Characters of the Urine.—In no case were we able to distinguish the oxalate by the naked eye, and have generally found it equally disseminated throughout the vessel, never subsiding so as to form a deposit. In all but one instance there was a sediment at the bottom of the glass, consisting either of epithelium scales, or urate of ammonia; and we were led in one case to suspect the presence of the oxalate, from the unusual quantity of epithelium scales. The specific gravity was about the same average as that of healthy urine, and the reaction always acid with one exception, in which case it was neutral. The urea and phosphates were almost invariably in excess, while the uric acid was deficient, and towards the termination of the case as the oxalate disappeared, in two instances we remarked the presence of a few crystals of the triple phosphate, and in three, the appearance of lithic acid in the form of rectangles; in one case, this latter was in considerable abundance. Specimens of urine voided at different periods of the day contained the oxalate in variable proportions, being sometimes entirely wanting, while the largest quantity was generally found in that passed just before going to bed. The crystals, as observed under a microscope, magnifying about 250 diameters, differed not only in size but also in shape. The most common variety were double pyramids, joined together at their bases, each base being a square with the sides equal to the height of the pyramid; these sides varied in length, from one-third of a line to three lines. The crystals were usually of one uniform size in the same specimen, but often differed from day to day in the same individual. The variety that occurred most frequently next in order was the dumb bell, in length from two to four lines, the sides being much less concave than those figured by Golding Bird; occasionally, as a modification of this form, the dumb bell would be surrounded by an oval, the interval between the oval and the dumb bell being of a black colour. The next was a dark oval of the same size as the preceding, with a transparent square occupying half its surface set in the middle. We have also observed others occasionally, which would be difficult to describe without plates, but which were all modifications more or less of the last two varieties.

In all the cases, the patients either were at the time, or had been previously suffering from some form of dyspepsia, to which the formation of the oxalate seemed to be a consequence; and in fact, oxaluria should rather be considered as a symptom of one form of dyspepsia, than as a separate disease. Dr. Bird has, however, so well explained the probable origin and formation of this salt, that it would be out of place to enter into any additional explanation here. We would remark, however, that two of these patients (we regret that the inquiry was not made of all), complained that they had never been able to eat tomatoes without suffering an aggravation of all their symptoms. This, as is well known, is one of the most digestible articles of food that we possess, but yet contains a large amount of oxalic acid, which, although readily eliminated by individuals in good health, we can easily imagine might not be so readily appropriated where the system was already fully charged with it.

The symptoms that the presence of this salt produced, are almost innumerable. We have seen, in one instance, in a patient of Dr. T. Buckler's, an August cold as it is termed, which had appeared almost on the same day for years in succession, be coincident with large quantities of oxalate of lime in the urine, and be promptly relieved by appropriate treatment. May it not be that many of these colds owe their origin to this cause, and are periodical in their appearance in consequence of the ingestion of oxalic acid, which is taken in the articles of food which are in season only at this period of the year, particularly tomatoes? We have also known oxalate of lime to be associated with facial neuralgia, which promptly disappeared under the use of nitro-muriatic acid; indeed, in two of the following cases, one of the most prominent symptoms was neuralgia of the fifth pair of nerves. It will also be seen in case No. IV., that the presence of this salt was coincident with amaurosis, which improved in proportion to the diminution of the oxalate from the urine. The most striking symptoms, however, of this diathesis, are found in derangements of the nervous system. The patients all complained of unusual depression of spirits, distaste for society, and inability for physical or mental exertion; oftentimes these symptoms would be attended with a feeling of general malaise, without any decided localized uneasiness. In most instances there were some evidences of gastric derangement, such as a sense of oppression after eating, constipation, furred tongue, and enlargement of the papillæ; but these symptoms were not constant. As a general rule, there was no particular disturbance about the urinary organs, occasionally pain in the loins, irritability of the bladder, and pain in micturition; but with one exception these were not prominent symptoms. Emaciation was by no means constant, nor did we observe, in any instance, the peculiar greenish tinge of the complexion, spoken of by Dr. Prout. It is needless for us to go into any further detail in regard to the symptoms of this disease. They have been so fully and ably discussed by Dr. Bird, that it would be out of place for us, from our small experience, to add anything beyond a simple detail of facts, to what he has already written.

I should add that but a small number of the cases alluded to here, have occurred in my own practice, the rest I have had access to through the kindness of my friends. The cases numbered two and three occurred in the practice of Dr. Power.

Case I.—*Follicular Gastritis coincident with the presence of Oxalate of Lime in the Urine.*

January 27th, 1848.—Ashby Carter, a mulatto, æt. 42, a barber by trade, is married and has a family. He is very tall and a good deal emaciated, and says that he has not been well for eight or ten years, suffering principally from muscular debility. During this time he has had occasional attacks of what he calls dyspepsia, which obliged him to discontinue work from periods of one to three weeks. He says that he never noticed any peculiarity about his urine, nor has he had any pain over the loins. Since last November he has been getting worse by degrees, and has now been confined to his room for two weeks. His countenance is sunken, and expression of face anxious. Has considerable cough and pain in different regions of his chest, but no physical signs indicative of disease. He suffers greatly from neuralgia of the superior branch of the fifth pair of nerves, which has latterly been almost constantly present. Great muscular debility, restlessness, and incapacity for any mental exertion. Tongue moist and natural, but the papillæ are much enlarged and reddened; at the root of this organ some of them are as large as duck shot. Appetite good, but most articles of food produce uneasiness after eating; bowels usually tympanitic, and habitually constipated. There is slight pain over the loins, and almost constant irritability of the bladder, obliging him to rise three or four times during the night. A specimen of his urine was as follows: appearance natural, specific gravity 1.031; on holding it to the light a slight cloud is perceptible; urea and phosphates normal, uric acid deficient; a drop placed under the microscope reveals an unusual quantity of epithelium scales, and a few crystals of uric acid. Supposing, from the large quantity of epithelium scales present, that oxalate of lime might exist, it was examined attentively, but no crystals could be discovered. The patient was then directed to collect all that was passed during the subsequent twenty-four hours, and on examining a drop of this, large quantities of the oxalate were found. The shape of these were double pyramids of different sizes, the bases varying in appearance from one-eighth of a line to three lines in length. Ordered counter-irritation to the stomach, with a farinaceous diet, and ox. argenti half grain, with fel. bovis gr. iij three times daily.

Feb. 2d.—Patient's condition somewhat improved; his food agrees better with him, and his bowels are regular. Urine remains the same. Ordered to take in addition nitro-muriatic acid in infusion of gentian.

10*th.*—The acid disagreed so much that he was obliged to discontinue its use after a few doses. His tongue now looks better, but he says he still feels very weak. Ordered some animal food, and renewed the acid, substituting an infusion of hops for the gentian. Urine still contains the same amount of oxalate of lime.

March 2d.—Patient expresses himself as greatly better. Has been out of doors for the last week. Bowels regular; appetite good, and no sense of uneasiness after eating. The neuralgic pains have much improved, and also the irritability of the bladder. Papillæ on the tongue still much enlarged. Ordered to stop the ox. argenti and fel. bovis, and go on with the acid twice daily.

April 4th.—Patient has been improving fast since the last note. He has gained flesh; has gone about his usual occupation, and suffers no longer from neuralgia. His urine is as follows: urea and uric acid slightly in excess. Phosphates deficient. A few isolated crystals of oxalate of lime with an occasional one of the triple phosphate are perceptible under the field of the microscope.

Case II.—*Feb. 22d*, 1848 ——— ———, æt. 36, and a lawyer by profession. His attack commenced about four months since, and he has been gradually getting worse. After being subjected for some time to the influence of moral causes, which tended to depress his nervous system, he found that his digestion had become impaired, that he had acquired a distaste for society, and was incapable of either mental or physical exertion. About two weeks since, in addition to these symptoms, he found himself seized with attacks of vertigo, and great muscular debility, so violent at times that he would fall down suddenly, and require assistance to reach his home. This last symptom has increased so much within a few days past, that he is now unable to leave the house. At present his condition is as follows. Muscular development moderate, but no emaciation; countenance pale and sallow; skin moist, cold and clammy; tongue slightly furred, complete anorexia, and constipation; vertigo on the slightest exertion; pulse weak, otherwise natural, pain over the loins and along the course of the urethra, particularly in urinating; great confusion of thoughts and depression of spirits, perfect inability to apply his mind to even the ordinary affairs of every day life, and extreme despondency. An examination of a specimen of his urine gave the following result. Colour deep red, specific gravity not ascertained. Large and copious yellowish-white deposit at the bottom of the glass, which clears up on heating it, and conconsists of urate of ammonia. On examining a drop of the lowest strata under the microscope, numerous crystals of oxalate of lime are perceptible of different shapes. The most abundant are of two different kinds, the one being very small double pyramids with square bases; and the other flat ovals from two to three lines in length of a black colour, with the exception of a small transparent square in the middle. There are also some double pyramids of a larger size, and a few dumb bells, the latter being less concave at the sides than those figured by Golding Bird in his work on Urinary Diseases. In addition to the oxalate, there are observable large quantities of epithelium scales, and a few grains of lithic acid. The phosphates are deposited in the usual quantity on the addition of ammonia, and the urea is much increased while the uric acid is nearly wanting. Ordered a few doses of mass. hydrarg. with iron and quinine.

Feb. 25*th.*—Symptoms nearly the same; ordered nitro-muriatic acid with chamomile tea three times daily.

March 13*th.*—Has been improving steadily since he commenced using the acid. Is walking about, and says he thinks he will now get well. A specimen of his urine was as follows: urea and uric acid nearly normal. Some very minute crystals in the form of pyramids and a few dumb bells, such as have been previously described, were observable, the whole quantity being very much less than in the specimen first examined.

21*st.*—Says he is perfectly well; skin and colour natural; no oxalate in the urine; but a few crystals of the triple phosphate are to be seen.

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Case III.—*May* 2*d*, 1848 ——— ———, æt. 24, a lawyer by profession, has always led a sedentary life, and been of studious habits. He has been unwell for the last three months, and suspects himself to have phthisis, to which he has a hereditary predisposition. He is slightly made, a good deal emaciated, and pale and sickly in appearance. He complains principally of great depression of spirits, and inability to mental or physical exertion. Appetite good, digestion performed without any sense of uneasiness; bowels regular, and no local symptom which would lead us to suspect urinary disease. Tongue enlarged and covered with a white fur, cracked in the centre, and the papillæ much reddened and elevated. The same condition of papillæ is observed in the back fauces and around the uvula. He has cough occasionally, and neuralgic pains in different parts of his chest. Slight pain after exertion in the loins; pulse 96 and feeble. There are no physical signs about his chest indicative of disease, and his whole appearance would rather lead to the suspicion of his suffering from seminal emissions, which, however, is not the case. A specimen of his urine passed in the morning is as follows: colour natural; specific gravity 1.028, acid reaction and slight flocculent deposit. Urea and phosphates considerably in excess. Uric acid deficient. The deposit is found to consist principally of epithelium scales, and large quantities of oxalate of lime in the form of double pyramids with a square base, the sides being about one line in length apparently. Ordered nitro-muriatic acid, with an infusion of chamomile three times daily.

May 25*th.*—Is much improved within the last week. His apprehensions of phthisis have been removed; but he still feels incapable of exertion. Ordered to go on with same treatment. Urine as follows: colour natural; flocculent deposit at bottom of vessel; specific gravity 1.025. Urea and uric acid nearly normal. Ammonia throws down an excess of phosphates, and there seems to be a trace of sugar, but this is doubtful. The microscope shows the quantity of the oxalate to be much diminished, a few crystals only being perceptible, and there are also fewer epithelium scales. Lithic acid, however, is present in considerable quantity in the form of long slender rectangles which cross each other in the centre forming stars. Ordered to stop the acid, and take phosphate of ammonia.

June 10th.—Is nearly well; looks much better; has lost his disinclination for society. The urine contains only a few epithelium scales as a deposit.

Case IV.—*Feb. 5th*, 1848. ——— ——— æt. 25, a lawyer by profession, large and fleshy, but with a pale and clammy looking skin, and sedentary habits, presented himself with the following symptoms. He has been unwell for the last four years, suffering with obscure symptoms of disease, which by his friends have been thought to be imaginary in a great measure, and though not sufficient to confine him to the house, have rendered him incapable of attending properly to his profession. He has had at various times within this period, neuralgia about the face occurring principally in the fifth pair of nerves, pain in the loins, indistinctness of vision, great depression of spirits, and disinclination for society. He has also noticed that his urine abounded in a reddish-white deposit at times, coincident with the aggravation of his other symptoms. His father, for a long period of his life, was troubled with some urinary disorder, the exact nature of which is not known. At present he suffers from constipation and anorexia; coldness and moisture about his hands; occasional neuralgia and sense of weakness over the loins; great depression of spirits and disinclination for society; pain along the urethra in making water, and some irritability of the bladder. His pulse and tongue are natural, the first rather small. The prominent symptom, however, with him is inability to use his eyes for more than a very short period at a time; vision becoming indistinct, and muscæ volitantes making their appearance. This disturbance of vision has induced him to consult several eminent oculists, who regarded it as a local affair, and treated him without benefit. A specimen of his urine passed this morning was as follows: colour natural; slight filmy deposit on standing some time, reaction faintly acid, and specific gravity 1.036; the quantity of uric acid is less than normal, while urea and the phosphates are in excess. Nitric acid produces a brown opaque cloud throughout, which clears up on heating it, and is probably mucus. The deposit at the bottom of the glass, examined through a microscope, consists of minute crystals of oxalate of lime in the form of double pyramids in great abundance, and large quantities of epithelium scales.

March 7th.—The patient has been out of town since the last date, and has been subjected to no treatment. The symptoms remain nearly the same; the pain along the urethra is worse at times, and is coincident with increased disturbance of vision. He describes the pain as smarting and burning, and worse during the act of micturition. A specimen of urine voided at night is as follows: urea in excess; decidedly acid reaction, specific gravity not ascertained. A thick layer of urate of ammonia of a cream colour is deposited at the bottom of the glass. On heating this, and submitting a drop of it to the microscope, great quantities of oxalate of lime are discoverable at first glance, looking like squares with bases of a half to one line, but a little attention soon shows them to be double pyramids, joined together at their bases. The following treatment was ordered. Diet to consist of an equal mixture of animal and vegetable food simply dressed, abstinence from stimulating drinks, and ℞.—Fel. bovis ʒij; ox. argenti ʒss. Ft. pill. xxx. One twice daily. Also ℞.—Nitro-muriatic acid ʒiij; comp. infus. gentianæ ℥vj. Teaspoonful gradually increased to a tablespoonful after each meal.

13*th.*—The pills purge, and the acid disagrees. Advised to discontinue the first except when necessary, and to omit the acid for a few days. Symptoms the same. Urine contains, in addition to the oxalate, some crystals of lithic acid deposited spontaneously.

30*th.*—The acid made in the usual proportions produced so much disturbance of stomach, that the nitric and muriatic acids were combined in equal proportions, and an infusion of hops substituted for the gentian. This he has been taking for ten days, and his symptoms are much ameliorated. His spirits are more cheerful; the pain along the urethra has disappeared, and vision is much improved. Two specimens of urine were brought for examination, differing widely in composition. The average specific gravity of the two was 1.027. The oxalate was entirely wanting in the morning specimen, and in but small quantity in that passed at night. In other respects it was similar to that examined previously with the exception of an absence of epithelium scales. Ordered to continue the same treatment.

April 18*th.*—Patient's complexion is more natural, and he describes himself as being in better health than he has been for two years. His vision is so much improved that he now experiences very little inconvenience from it. He admits to have been guilty during the last few weeks of occasional indiscretions of diet, which have retarded his improvement. His urine was not examined. Ordered to proceed.

Since the last date the patient has not returned, and we conclude that he is either well or greatly improved. This case is in some respects an obscure one, but we suppose the prominent symptoms to have been dependent on the presence of the oxalate, from the fact of their amelioration being coincident with the disappearance of the salt from the urine.

A majority of the cases, from which the previous observations have been made, were comparatively mild, and in all the treatment was eminently successful. Evidences of gastric derangement being nearly always present, it was generally found necessary when the patient was first subjected to treatment to use appropriate means for its subdual. These were sometimes sedatives, sometimes massa hydrarg., and in two or three instances fel. bovis with ox. argent.; but in no case was it found that the oxalate disappeared from the urine under their administration. Nitro-muriatic acid in doses of from four to ten drops three times daily, combined with some tonic infusion, was used in all the cases. In but two instances did it disagree, and this was remedied by adding to it an infusion of hops. In addition to these means, the diet was carefully regulated, using an equal mixture of animal and vegetable food plainly dressed, and abstaining from stimulating drinks; at the same time exercise, bathing and the usual hygienic means were insisted on. We have heard two patients say that the acid acted upon them as an anodyne, that frequently when suffering from neuralgia and an undefined sense of uneasiness which prevented sleep, a single dose of the medicine would procure most decided relief for an interval of some hours. If this relief was not owing to the imagination, it could only have been produced by the action of the acid upon the oxalate of lime, which we think is not at all improbable.

BALTIMORE, *June 24th,* 1848.

ART. II.—*Surgical Cases reported to the Bureau of Medicine and Surgery.* By M. G. DELANEY, M.D., Surgeon U.S. Navy. (Communicated to this Journal by THOMAS HARRIS, M.D., Chief Bureau Med. and Surg.)

Amputation of the thigh by circular incision.—I wish to call the attention of the profession to the new mode of amputation at the lower third of the thigh, proposed and practiced, with success, by Professor Syme of Edinburgh. The superiority of the flap over the circular operation will admit of a doubt; and the facility of its performance, and nice mechanical adaptation of parts, will scarcely compensate for the not uncommon occurrence of a conical stump. In fact, many able surgeons who advocated the flap operation, and performed it in almost all cases, have now, to a certain extent, abandoned it.

The advantages claimed for it are quickness of performance, and a good muscular cushion for a stump: the first, where it occurs, is a matter of small moment; the latter, a circumstance not necessarily resulting.

Its disadvantages are known to be, increased pain from oblique incision of the nerves, increased hemorrhage from oblique incision of the arteries, the necessity of a greater number of ligatures than is ordinarily used in the circular operation, the greater probability of secondary hemorrhage, retraction of muscles, and finally, a conical stump. It is true that many of the best surgeons continue to practice the flap operation, who, if the results I have mentioned were of common occurrence, would have long since abandoned it; but in the absence of comparison, it is natural to prefer that mode which is most familiar, and in which we can exhibit the greater dexterity. What I mean to imply simply, is this, that experience has proven the circular to be a safer operation than the flap, in all cases save at the upper third of the thigh; that there is less danger of secondary hemorrhage; that eventually, the flap operation, when successful, is reduced to the circular, inasmuch as little remains but an integumentary stump in both.

I have seen two flap amputations performed upon the same thigh, and by two clever surgeons; both terminated in a conical stump and proved unsuccessful. I cannot affirm that the circular operation in this case would have given a different result, but I have reason to think it would.

A sufficiency of skin, not of muscle, is the requisite for a good stump; and this does not always obtain after the retraction and suppuration of a large muscular flap. I have performed the integumentary or circular operation many times, upon all parts of the extremities except the upper third of the thigh, and lower third of the forearm, and, without a single exception, successfully.

The operation of Professor Syme, which I recommended, and which was practiced in the following case, he thus describes:—

> "The compress of the tourniquet should be applied over the artery close to the groin. Instead of the old-fashioned concave edged, thick-backed amputating knife, a middle-sized one of the kind employed for the flap operation, will be found more convenient. The incision of the skin should be made as near the knee as possible, not in a circular direction, but so as to form two semi-lunar edges, which may meet together in a line from side to side, without projecting at the corners. The fascia should be divided along with the integuments, which are thus more easily retracted—not by dissecting and turning them back, but by steadily drawing them upwards, through means of the assistant's hands firmly clasping the limb. This should be done to the extent of at least two inches, or more, if the thigh is unusually thick. The muscles are then to be divided as high as they have been exposed, by a circular sweep of the knife, directly down to the bone, from which they must be separated and retracted with the utmost care. In ordinary circumstances, the retraction should not be less than two inches, and, before using the saw, the bone must be completely exposed by means of a cloth split up the middle, applied on each side of it, and forcibly held up."

Case.—Mr. Wm. Hart, aged 48, Boatswain U.S. Navy, received a simple fracture of the right leg, in upper and lower thirds, some fifteen years ago. In attempting to rise from the deck he fell with much force upon the knee of the injured limb. Within the usual time, the patient being a healthy man, and free from all scrofulous disposition, the bones were reunited, and he was enabled to pursue his usual duty in the Charlestown Navy Yard. But in the course of a year, the knee upon which he fell began to be painful and swollen. All means were unavailingly employed to abate the pain; and bandages, splints, and rest, were equally useless in the endeavour to produce a cure; or cause anchylosis of the joint. Contraction of the tendons of the knee took place, and for the last five years the extremity has been carried at an angle of 100° with the thigh. A consultation of surgeons having determined the necessity of amputation, I proceeded to the operation on the 27th of April last, in presence of, and assisted by, Drs. Cheever, Oliver, and Boardman of Portsmouth. The patient desired that chloroform should be administered, and it was accordingly inhaled through a sponge, under the direction of Mr. Preston.

I would here remark, that, expecting the speedy action of the chloroform, I had applied and tightened the tourniquet previous to the inhalation. I should not do so again. I would merely buckle the strap and not impede circulation till insensibility was produced. The first few inhalations caused spasms and convulsions, which, however, were easily commanded by the assistants—the patient not being otherwise secured—and it was full four minutes before that stertorous quietude was obtained sufficient to commence the operation. This length of time completely filled the veins of the extremity: and though the hemorrhage was not great, yet it was more than the reduced state of the patient rendered desirable, and double what it would have been had the tourniquet not been tightened till the moment of cutting. The unnecessary loss of blood is an object not to be lost sight of, especially in secondary amputation, where the system is generally very much reduced.

The thigh being very thick, retraction to the extent of three inches was made by dissection, the fascia being so bound down to the muscles by the action of years of bandaging, that it was impossible for the hands of the assistant to retract alone. The skin was not turned back.

Immediately after the first deep incision, the femoral artery was secured by a ligature, and then the muscles carefully separated from the bone to the height of two and one-half inches. The whole operation only occupied six minutes, which, as respects time, will compare favourably with most of the flap amputations. The amount of chloroform consumed was about three drachms, inhaled interruptedly, to prevent the possibility of asphyxia. Yet even with this caution (and the amount of chloroform used was indispensable to produce the desired effect, say two drachms actually inhaled), the patient became nearly pulseless. The stimulus of brandy, however, as soon as it could be swallowed, restored him to partial consciousness in a few minutes.

His perception of objects and hearing remained, to a certain extent, during the operation; but with a total insensibility to pain, and a complete ignorance, for twenty minutes after, that such operation had been performed. The divided arteries seemed little disposed to bleed; and I must here add my testimony to that of others, of the scarcely perceptible difference in colour between the arterial and venous blood. Only four ligatures were required. To secure adhesion by the first intention, I consider the removal of all coagula by a sponge wetted with *cold* water, the best means. A temporary constriction of the small vessels is thus produced till the parts are coaptated—no space is then left for coagula, and, consequently, the chance of suppuration is much lessened. Adhesive straps only were applied to the stump, and the patient removed to bed.

Very slight vomiting took place in bed, once only, and for a few seconds —and then all the faculties were gradually restored, and a painless, quiet lassitude obtained. Dissection of the joint proved the necessity of its loss; the cartilage, and much of the cancellated structure of the external condyle having been absorbed. The night succeeding the operation had been the most painless one passed for years.

The straps were replaced on the eighth day; no bandage applied; ligatures all removed by the twenty-first day, and on the thirty-fifth day, the patient was walking about his house, with a stump completely healed, except at one small point in the centre.

Only for a day or two, and from irregularity of diet, did any topical application become necessary, and then an evaporating lotion of rum and water reduced the heat to the natural standard. From the seventh week of the operation, the patient has been daily walking the streets in the enjoyment of the most perfect health.

Remarks.—There are two things which I wish to impress by this case —1st, the superiority of Syme's method over every other in amputation of the lower third of the thigh, and the almost certainty, by this mode, of preventing that disgrace to surgery, a conical stump. 2d, the great caution necessary to be used in the administration of chloroform in a large quantity, so as to prevent asphyxia, and this is best avoided by inhaling it interruptedly, and always through a sponge, for the proper admixture of air.

Whilst on the subject of amputation, I may remark that, of late, I have had occasion to amputate many fingers and toes, and I find by experience that (particularly when the flap is made from the plantar or palmar face of the limb) the best mode of union is caused by the interrupted suture.— Three sutures for the great toe, and two for any of the others, will suffice. I leave them in for ten days or a fortnight; they rarely ulcerate through, on account of the thickness of the skin, and they produce an adaptation of parts seldom accomplished by the sticking-plaster and bandage alone.

Castration of enlarged and irritable testicle.—Captain Thomas T., aged 59, had undergone the palliative operation for hydrocele of the tunica vaginalis of the right side, some eighteen months ago. He had neglected to follow the advice of his careful surgeon, and take the necessary rest for a short time. In consequence of his imprudence, inflammation and pain quickly followed, the scrotum increased in size, became pyriform in shape, had constantly to be triced up in a handkerchief, and altogether, both at sea and on shore, as he expressed it, his life was perfectly miserable. I was called to see him on the 14th of May last, and requested to bring with me the necessary instruments for tapping the scrotum.

I found him in bed, where he had been for weeks, and with that peculiar countenance so expressive of great suffering. External applications, and opiates in large doses, had been used, without, in any material degree, abating the pain. Upon examination, I found the right side of the scrotum greatly distended, and, in addition, a large inguinal hernia of same side, for which he had never worn a truss. The intestine was easily returned without diminishing the size of the scrotum, and the spermatic cord, at the abdominal ring, was found to be of nearly the natural size and feeling.

The scrotum was very large—skin smoothly distended, apparently transparent in places, with a slight sense of fluctuation; but the outline of the testicle could not be easily traced. The whole tumour wanted the density and flatness of a diseased testicle. I was greatly embarrassed in my diagnosis. Judging *à priori*, the man had hydrocele; but taking into consideration the great pain and constitutional disturbance, there must be a diseased testis. I stated my doubts, and suggested the propriety of introducing a small exploring trocar. This was done, and not one drop of fluid escaped! Thus was the true state of affairs at once made known, and without causing any noticeable pain. Some there are who may blame my diagnostic discrimination in not arriving upon sight at a just conclusion.—To those I may remark that surgeons, like other men, differ in tact; and are not equally happy in the correctness of their deductions.

Sir Astley Cooper, when in Paris, had been requested by M. Roux to give his opinion, before the medical class, upon the case then on the operating table. It was one of enlarged scrotum. Sir Astley, after a careful examination, pronounced it scirrhous testicle, and declared the necessity of extirpation. Whereupon the wily Frenchman shoved a lancet into the bag, and the scirrhous testicle, to the amazement of Sir Astley, ran out in a limpid stream! In this instance we are bound to admire M. Roux's diagnosis, rather than his politeness. But the case exemplifies this, that a surgeon, however eminent, may sometimes be mistaken.

I advised the necessity of extirpating *this* testicle from the fact of its being so exceedingly painful—the cord being small, and free from knots, and the surface, to the touch, so smooth, and free fromtuberculation. Accordingly, on the 16th of May, two days after the exploration, I proceeded to extirpate the testicle, assisted by Dr. Cheever, of Portsmouth.

The hair having been shaved off, an incision was made from the external abdominal ring, to the inferior part of the scrotum, in length seven inches. Careful dissection was here necessary, as the action of the abdominal muscles had forced the intestine into the opening. Instead of separating the blood-vessels from the vas deferens, and then tying them, it was found more convenient to cut half-way through the cord, secure the arteries, and then finish the incision. This proceeding is the quickest; and as no contraction can take place till the arteries are secured, and the cord severed, I consider it the best.

The testicle was then carefully dissected out from the scrotum, and the artery of the septum and a few other small ones secured. Not more than four ounces of blood were lost during the operation. Four sutures were passed through the lips of the wound, which was then lightly dressed with a pledget of lint. Not the slightest secondary hemorrhage occurred, and the only disagreeable symptom was retention of urine for thirty hours after the operation. I had not seen the patient in the mean time, but upon my arrival introduced the catheter, and drew off three pints of urine. From this time forward, not one bad symptom occurred. Adhesion by the first intention, took place over the greater part of the surface, the ligatures came away in seventeen days, and in four weeks from the operation, the parts were entirely healed and complete health restored. Capt. T. never had either gonorrhœa or venereal; neither was he affected by stricture. The body of the testicle contained about three ounces of bloody pus, which in a short time must have found its way to the surface, and caused abscesses. Otherwise, except in density and size, it was apparently natural. Could the contained fluid in the body of the testicle have given, through its thickened walls, the sense of fluctuation, which was perceived upon the first examination? This case goes to show, that even so plain an affair as hydrocele and enlarged testicle may be compounded.

In cases of highly irritable testicle, all palliatives have been, eventually, found useless: and nothing in such cases will succeed but extirpation. Why then hesitate to recommend orchotomy, in preference to years of indescribable suffering? The procreative faculty has been found equally active with a testis, as with testes; a fact strongly exemplified some years ago, in the case of an employé in this Navy Yard. The remaining testis of Capt. T. is in as good condition as could be expected from a man of his age. It was proposed to give him chloroform; which he refused, being of a very resolute disposition: he is now at sea, in command of his own vessel.

Case of congenital glossocele, or hypertrophied tongue.—Miss Sarah Fernald, aged twenty, a native of Kittery Point, Maine, was born with her tongue protruding from her mouth. It had literally grown with her growth, and strengthened with her strength, until it became a constant nuisance to herself and a disgusting sight to the beholder. She is a finely formed, sprightly, and intelligent girl; has never had any disease save this of the tongue, and a scrofulous ulcer of the sub-maxillary gland, which discharged for some time, and then healed spontaneously. The legend her mother relates is, that when some seven months advanced with this child, she longed for pomegranates, which she had never seen except in a picture, and which desire continued with her till the birth of Sarah. Irreconcilable as it is with common reasoning, and incomprehensible, according to our present knowledge of the power of the mother's mind over the fœtus in utero, yet we cannot deny the fact, that strange impressions are made through the medium of the mother's fancy upon the unborn infant. The tongue of Sarah did, through infancy, and until amputation, retain the appearance of an open pomegranate,—the enlarged and diseased papillæ closely resembling the seeds of that fruit. I was requested to examine the case, with reference to the feasibility of an operation. I found, as I have described, a handsome intelligent girl, with a tongue protruding (from upper teeth to apex) a little over four inches, circumference seven inches, and thickness at middle of tongue, two inches—indeed the tongue was of nearly the same thickness from root to apex. A deep linear fissure occupied the dorsum of the tongue in its whole length. The protruded portion was quite dark, owing to the number of vesicles filled with blood; and the part in the cavity of the mouth was also covered with these vesicles, and enlarged papillæ,—but in a lesser degree. The substance of the tongue was extremely hard, and scarcely susceptible of pain: and was constantly pouring out a profuse, viscid, and offensive exudation. The tongue could not be retained in the mouth except for a moment; as its intrusion filled the whole cavity of the fauces, and prevented respiration.

The inferior maxillary bone was natural in form, except at the symphysis, where the incisors and canine teeth were separated half an inch, and inclined outwards by the constant pressure and weight of the tongue. The lower teeth were covered with tartar, and rather loose in their sockets, and the lower lip everted on the chin.

She had never been able to masticate with her tongue in the mouth, and consequently lived mostly upon fluids. She was subject to painful periodical swellings of the tongue, every six weeks or two months, during which time she would almost reach the point of starvation, from absolute impossibility to swallow any nourishment for a number of days. During these periodical turns (which had no connection with the menstrual discharge, the latter being always regular) profuse hemorrhage would sometimes take place from the tongue, which at these times looked, as she expressed it, as black as my hat. She could make herself understood, though her words were very thick, and given with a lisping utterance. My advice was requested in this painful case, with the promise that it would be acceded to in all things. I was prepared for such a contingency, by a knowledge of the operation, and success of my former preceptor, Dr. Thos. Harris of the U. S. Navy, now chief of the Bureau of Medicine and Surgery, Washington. A description, with a plate of Dr. Harris' case, may be found in the seventh volume of the *American Journal of the Medical Sciences*, Oct. number, 1830.* The similarity in both cases is remarkable; the principal difference exists in the one being a congenital disease, the other not. The plate of Dr. Harris completely represents the tongue of my patient, save the tartaric deposit: in other respects they are alike;—with a balance in favor of Miss Fernald, on the score of youth and beauty.

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* On the 26th of May, 1835, another operation, similar to the one here mentioned, was performed by Dr. Harris upon the tongue of a young man, aged nineteen, from Tennessee, who had been induced to apply for relief, from having heard of the success of

I decided upon amputation, recollecting the difficulties Dr. Harris encountered, in his attempt at strangulation by ligature, and his failure so to do. Also, his urgent advice to avoid, by amputation, a painful and fruitless proceeding.

On the 30th of May last, assisted by Dr. Oliver, of Portsmouth, I operated in the following manner:—The patient being seated in a chair, her head supported by one assistant, and hands secured by others, I forcibly drew the tongue outwards and downwards by a strong forceps, commenced a Λ incision with a bistoury on the left side, carried it to the median line a little inside of the upper incisors, turned and cut outwards.

Thus, with two strokes excising the part, which was of great density and hardness. A formidable jet of blood immediately issued from the dorsal and ranine arteries, which were, of course, preternaturally enlarged.

I tried to control the hemorrhage by torsion, which failed, as the arteries were so impacted in the surrounding substance that I could not draw them out. Compression was quite as unsuccessful; dossils of lint, wetted with iced alum water, were no better, and so I proceeded to tie the dorsal and ranine arteries, which I did without trouble, and thus effectually stopped the hemorrhage.

The patient all this time suffered so little pain, that the moment the arteries were secured she jumped up and ran to the mirror, to see the effect of the operation. The ligatures were cut off close to the knot, hoping that in their course outward the suppuration might tend to lessen the great thickness of the tongue.

The flaps were now brought together, (the coagula having been carefully removed with iced alum water,) and secured with four interrupted sutures. When this was done, the tongue was of good shape, and no point of cut surface remained exposed. Length of tongue removed, two inches and three-quarters. For nine hours after the operation the tongue remained within the mouth; inflammation and swelling then set in and protruded it. The only dressing applied was a dossil of lint, wetted with ice water. There was no secondary hemorrhage. On the sixth day three of the

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the first case. In this patient, the enlargement was congenital;—the tongue projected beyond the upper incisors, three inches—circumference six inches—vertical thickness, one inch and a-half,—of a violet colour, hard and incompressible consistence, and covered with a dark slimy secretion. The deformity was so great, that he was obliged to wear constantly a silk handkerchief over his mouth, and around his neck.

The result of the operation was complete; and the gentleman subsequently became a practitioner of medicine, in his native state. The details of this case, with descriptive plate, may be found in vol. 20th, *American Journal of the Medical Sciences*, 1837.

sutures were removed, and on the twentieth, complete union had taken place by the first intention. The turn of periodical inflammation had come round by this time, and the tongue became slightly swollen, and the sub-maxillary gland of the left side very much so. The application of half a dozen leeches with saline purging quickly subdued this attack. The patient had been put upon the tinct. of iodine, and it was continued with benefit.

On the 5th inst., Miss Fernald, for the first time in her life, chewed with the tongue in the mouth. It is now kept within the teeth, like any normal tongue, and protruded with slight difficulty. The exudation is very trifling—not sufficient to afford the slightest inconvenience, and altogether deprived of unpleasant odour. On the 10th inst. I had occasion to remove the lower incisor teeth, their horizontal projection having caused ulcers in the lower lip, which has now assumed its natural position, and completely closes the mouth. On the 25th of July Miss Fernald paid me a visit at the Navy Yard, and I take pleasure in saying, that a more comely looking girl, or one better pleased with her own altered condition, can rarely be found.

The fear of hemorrhage has deterred surgeons from amputating any considerable portion of the tongue. The recorded case of Dr. Harris, and the present one, are the only operations of the kind that I have any knowledge of, in the United States.

The tongue may be operated upon with as much safety as any other organ in the body, and its great vascularity ensures a more speedy union. But no operation by ligature should be attempted. The knife alone is to be relied upon, and the arteries being secured, and parts adjusted, as in the Λ incision, very little need be feared from secondary hemorrhage.

In confirmation of the above opinion, I may be permitted, briefly, to detail the following case:—

In October, 1845, I was attached to the U. S. sloop-of-war Saratoga. We were then lying at anchor, off the Island of Sacrificios, at Vera Cruz. At sun-set, on the approach of a norther, all hands were engaged in sending down top-gallant masts, striking top-masts, &c. Midshipman Joseph F. was stationed on the poop, and whilst standing at the taffrail, and looking aloft, the spindle of the mizen lightning rod, weighing some five pounds, came down by the run, the point of it striking Mr. F. on the left upper lip, carrying away the left upper incisor and canine teeth, fracturing slightly the superior maxilla, passing obliquely through the middle of the tongue, and the middle of the right sub-maxillary gland, and after grazing the sheath of the carotid, protruding some four inches through the skin, over the sterno-mastoideus, three inches below the angle of the jaw. Of course he was felled to the deck, and it required much force to withdraw the spindle. Immediately upon effecting this, a rush of blood took place from the wound;

but my assistant, that very clever young surgeon, Dr. Bernard Henry, who was standing alongside of Mr. F. at the time of the accident, applied pressure to the neck with his fingers, and had him conveyed to the cabin. The hemorrhage was considerable; but it was evident, in a moment, that the carotid was intact, and that the superior labial, dorsal artery of the tongue, sub-lingual, and probably a branch of the superior thyroid, were the principal arteries involved. The cut surface of the upper lip being smooth, was closed by sutures. The spindle had rather a sharp point, which was coated with platina. Cold acidulous drinks were given, and perfect quietude in the horizontal position enjoined.

The teeth were never found: the tongue had the appearance of having one of them embedded in its centre, but it could not be felt. For two days there had been free bleeding from the mouth, and lower orifice on the neck; and styptic applications, without pressure, were the only means admissible. We were ready at any moment, if requisite, to tie the common carotid, below the superior thyroid; but after forty-eight hours, the bleeding, in a great measure, ceased. The period of sloughing was watched with some anxiety, but it passed by without hemorrhage: and in the course of four weeks, the patient was about decks again, the wounds all having healed, and with a scarcely perceptible scar upon the upper lip. The middle of the tongue remained enlarged; and whether from this cause, or injury of the sub-lingual nerve, there was a slight impediment in the speech, for a few weeks. Had the arteries of the tongue only been involved in the injury, I should not have hesitated to pass a strong curved needle with a ligature, through that body, and thus command the hemorrhage:—so little danger is there, in my opinion, in operations upon this organ. To the untiring attention of assistant-surgeon Henry was the patient mainly indebted for his speedy and happy recovery.

NAVY YARD, *Portsmouth, N. H., July*, 1848.

ART. III.—*Extracts from the Records of the Boston Society for Medical Improvement.* By SAMUEL PARKMAN, M. D., Secretary.

Jan. 24th, 1848.—*Hydrocephalic Child.*—Dr. Storer presented two drawings for the cabinet, and read the following account of the case with measurements, &c. The child was examined at Brighton October 29th, 1847. It was then five years and six months old. It died about a fortnight since, being about five years and nine months old.

Its head measured as follows:—

Circumference, 27¾ inches; from centres of meatus auditorii, 17¾ in.; from base of nose to occipital ridge 19 in.; from base of nose to hair on forehead, $3\frac{3}{4}$ in.; from meatus to posterior fontanelle, $5\frac{1}{2}$ in.; from forehead to occiput, $10\frac{3}{4}$ in.; greatest transverse width, $7\frac{1}{2}$ in.; from meatus to frontal protuberance of the same side, $4\frac{15}{16}$ in.; space between internal canthi $1\frac{3}{4}$ in.; weight of head $10\frac{1}{2}$ lbs.; of body, including head, $22\frac{1}{2}$ lbs.; fontanelles nearly ossified.

The *head* was large at birth, and increased rapidly during the first six months. The growth of the body has been very slow; the muscles of the extremities are attenuated and feeble; he has never been able to bear his own weight; when a year old he crept; but he makes no effort to move now; he either sits upon the floor or is supported in a chair.

He is easily frightened; has had frequent falls with injury to the head. When fourteen months old he had two convulsions, supposed owing to indigestible food, and has since frequently appeared as if about to have a recurrence of the fits. Had no increased difficulty while teething; had *chicken-pox* and *whooping-cough* the same winter without any particular trouble. The appetite has always been good, and he has eaten as much as common children. The sleep is good, and he uniformly wakes early in the morning, and seems cheerful and happy. Although the evacuations have not passed involuntarily, yet, for the most part, they have occurred without giving warning, resembling infants in this respect. The urine has always been passed in bed, and has sometimes been immoderate in quantity.

Tapping in Hydrocephalus.—Dr. S. Parkman had performed this operation five times at intervals of a week in a child six months of age, drawing off about ten ounces of fluid each time; the punctures were made at the anterior fontanelle, on the side of the median line, and the instrument, a fine trochar, entered about two inches. The head measured twenty inches in circumference, and the fontanelles were large and bulging. The child was comatose; occasionally moaning; pupils dilated and insensible without strabismus. Pulse small and feeble; appetite as usual, and bowels inclined to costiveness. After each tapping, the head was carefully strapped with adhesive plaster, and the child aroused in a very marked manner. The fluid, however, rapidly regenerated each time, and death occurred after the fifth tapping, without any change of symptoms. At the autopsy the convolutions were found flattened, and the cerebral substance about half an inch thick; the ventricular cavities contained a pint of clear fluid. No signs of inflammation produced by the operations.

Drawings and Daguerreotype views of Intestines, consequent upon the Diarrhœa following British Typhus, as seen in Boston.—Dr. Bowditch exhibited these, the property of Dr. Upham, who had caused them to be executed, the former by Mr. Leagur, the artist; the latter, by Mr. Whipple. The appearances were remarkably well shown in both cases. The appearances were a vivid redness of the upper portion of the small intestine, and the mucous membrane near the ileo-cæcal valve was thrown into large elevated transverse rugæ of a mottled red and dark or dirty white colour. Some of these rugæ (in the original specimens) were three or four lines high and one thick. The intervals were paler; but the whole of the membrane had lost its wonted polish. Peyer's patches were seen perfectly healthy, making depressions in the rugæ. The large intestines were greatly discoloured, and the mucous membranes thickened, and in parts ulcerated. The isolated glands were very distinct in the plates. Dr. Upham had noticed, among the emigrants convalescing from typhus, a disposition to diarrhœa, with slimy, but rarely bloody discharges; at times relieved, usually only temporarily so, generally returning with increased severity, and almost universally fatal. This symptom commenced ten or twelve days after convalescence, usually traceable to some dietetic error. Death took place usually from one to two months after the diarrhœa began, and, on examination, the above appearances, or others wholly similar, were universally observed.

Feb. 14th.—Spontaneous Laceration of the Pericardiac Aorta.—Dr. J. B. S. Jackson exhibited the specimen from a patient of Dr. Catling, of Roxbury, associate member of the society. A man, sixty years of age, of healthy appearance, but rather dyspeptic, ate heartily of ham at breakfast, to which he was not accustomed, and again at noon. In the evening he complained of nausea and faintness, and by Dr. C.'s advice took an emetic. The pulse was noted as rather small. Nothing unusual occurred during the first part of the night; but about two, his wife was awakened by his oppressed breathing, and he soon died.

On dissection, the cavity of the pericardium contained about six ounces of fluid and coagulated blood. The aorta, which was shown to the society, presented a laceration about half way between the valves and the arch, extending through the entire thickness of the vessel, and in a spiral direction, so as to involve more than its circumference. The pericardium was stripped up from the anterior face of the aorta, forming a large cavity filled with blood, and which had finally burst. In regard to structure the ascending aorta was almost perfectly healthy, and the descending portion was but moderately diseased. The edges of the laceration were nearly as smooth as if cut with a knife. The heart and other organs were healthy.

Colloid Cancer of the Stomach.—Dr. J. B. S. Jackson presented the specimen from a patient of Dr. H. Storer, a short, fat, healthy looking woman, of forty-five years of age. The antecedents were dyspeptic feelings for a year; frequent vomiting, with distress at stomach, and loss of appetite for five or six weeks—two weeks before death. Dr. S. being consulted, discovered epigastric tumour. The appearance of health was preserved to the last, and the patient was out as usual within a month of her decease.

The stomach, which was presented to the society, and is in the cabinet, showed the appearances of colloid cancer very well marked, involving the entire circumference of the pyloric portion to the extent of four or five inches, and encroaching slightly upon the duodenum. The mucous membrane was first affected, and afterwards the muscular, the sub-mucous cellular tissue being but little implicated; the maximum thickness was two-thirds of an inch; the surface was ulcerated to but a slight extent. From the anterior face of the stomach there projected externally a mass of the same disease of considerable size, and from the posterior face a similar one, but smaller. Two or three other small masses were also seen in the substance of the organ near the small curvature, and in the omentum near the large curvature were traces of the disease. The stomach was large and the mucous membrane in the portion not diseased, presented a uniform redness without other change. All the other organs were perfectly free from malignant disease.

28*th.*—*Rupture of the Aorta.*—The specimen was presented by Dr. Jackson, who gave the account of the case as follows:—A man, fifty-six years of age, and enjoying good health, was out of town on Tuesday afternoon, returning in the evening, and supping about 9 P. M. Soon after, he was seized with pain at the epigastrium, extending through to spine. During the night there were vomiting and inability to lie down. In the morning Dr. Gay saw him, and prescribed opiates with some relief. The pain continued during the day, which was passed without lying down, and he died at 4½ P. M. At the autopsy about two or three ounces of blood were found in the pericardium, and the aorta was ruptured in about two-thirds of its circumference just above the valves. The internal coats of the artery having given way, the blood had dissected a passage for itself until it finally reached the internal iliacs, where perforation of the inner coat again took place upon the right side, and the blood returned into its former channel; the branches from the arch were also dissected. This dissection involved mostly the posterior parietes of the aorta, and nearly or quite one-half of its circumference, the fibres of the middle arch being seen upon both surfaces along the false passage. The tissues of artery were nowhere much diseased, and apparently perfectly healthy at the place of rupture, except an appearance as of an old laceration, which had been cicatrized just above the valves.

Apparent Conjunction of Cancer and Tubercle in the same Organ—the Testicle.—Dr. Jackson presented the specimen removed by Dr. S. Parkman at the Hospital. A married man, thirty years of age, eighteen months since first noticed a swelling of the right testis, which has gradually and without pain attained the present size, that, say, of two oranges. Six weeks since, in the country, it was punctured under the idea of its being a hydrocele, which it much resembled in shape. Since then a little pus had been squeezed out each day at the opening. The integuments were tense, with several enlarged veins, and non-adherent except at the point of puncture—from which a drop or two of pus exuded, of the character usually styled scrofulous. The size of the tumour, the enlarged veins, the non-adhesion of the integuments, and the peculiarly elastic feeling suggested malignant disease; but the scrofulous pus seemed clearly to indicate tubercular deposition. The organ exhibited showed the whole of the testicle to be the seat of a tubercular abscess, which had destroyed nearly the whole tissue, while the epididymis showed well marked encephaloid disease. Dr. Parkman had examined both these tissues microscopically, and found in the latter a well marked stroma, and the irregular nucleated cells as signs of malignant disease; in the former the microscopic appearances were not perfectly conclusive as regards the disease being tubercular. Dr. Jackson spoke of this yellow, opaque, tuberculoid formation, as he called it, as being not at all uncommon in otherwise well characterized encephaloid masses.

March 13th. Arm presentation—delivery effected with the aid of Etherization.—Dr. Channing within three weeks had seen three cases. In the first, the cord and hand were in the vagina. Chloroform was administered, a foot reached, and the child was born alive. In the second, labour had continued four days, and the child had been dead some time. Ether was employed, and turning effected, and the mother did well. In the third, Dr. C. saw the woman on the fifth day, as reported by the attendants—the child was dead, and the arm enormously swollen. Etherization was effected; amputation at the shoulder and evisceration practised, and the mother did well. In all three, the advantages of the anæsthetic state were well marked, both in the facility it afforded to the operator, and the prevention of suffering for the mother.

27th. Paralysis of Long Thoracic Nerve.—Dr. Bowditch exhibited the subject, a man twenty years of age. The antecedents were typhoid fever in November, convalescense from which was rather tardy. The deafness was considerable, which still continues slightly. During convalescence, he observed the right arm weaker than the other, especially in all the motions requiring its raising. He commenced work, that of a soap stone cutter, about ten days since, when one of his companions noticed an unusual prominence of the shoulder-blade. The phenomena at present, and as exhibited to the Society, are:—a very slight projection of the base of right scapula from the side of the chest. When the arm is raised forwards, this projection increases in a very extraordinary degree, the base of the scapula forming a high ridge, admitting the fingers to be passed quite into the fossa subscapularis. The arm cannot be raised above a right angle. The serratus magnus anticus was evidently the paralyzed muscle.—When the scapula is supported behind by the hand of another, the arm can be readily raised by the patient. There is no other paralysis, or affection of the nerves of special sense, save the slight deafness already mentioned. General health good. A mechanical support and electricity were suggested as treatment.

April 10*th. Ovum blighted and retained for a long time.*—Dr. Jackson presented the specimen from a patient of Dr. Putnam. A healthy woman, mother of nine children, supposed herself to have conceived in November. All the symptoms of pregnancy were not present, however, and the existence of this condition remained uncertain, until abortion took place, about a week since. The fœtus which was exhibited was about the size of a fly. The point of interest, Dr. J. remarked, was the retention of the ovum so long after its blight, of which there have been several instances presented to the Society, though such cases are not described by obstetric writers, so far as he is aware.

Very large bodies successfully removed from knee-joints.—Dr. Stedman presented the specimens to be placed in the cabinet. The patient was a man, forty-three years of age, confined in the House of Correction as a common drunkard. At the age of seventeen he began to have swelling of the knees, with severe and constant pain, without any known cause. This continued for about three years, when he first discovered a movable tumour in right knee, just above patella, which has continued to increase till the present time. A similar tumour soon after appeared in the left knee. These tumours have had the effect to impede walking, he being often suddenly seized with pain in the knee, and inability to move further, the tumours being always perceptible at these times. These tumours have increased with his age. Dr. S. operated upon the right knee March 22d, and on the left, April 1st. In both cases, the bodies were brought to the outside of knee, and being maintained there, the skin over them was drawn to one side, in order that the wound of the capsule of the joint might not be parallel with that of the surface, and an incision made upon them, by which they were at once set free. The wounds were united by the ethereal solution of gun-cotton, and there was not the slightest inflammatory action. At the expiration of his sentence, the patient walked with perfect ease.

The bodies were composed of fibrous and osseous tissue, in about equal proportion.

The first removed weighed - - - -	283 grs.
2d " " - - - - -	257 "

The length of the first was - - -	$2\frac{1}{16}$	inch.
width " " - - - -	$1\frac{7}{16}$	"
thickness " " - - - -	$\frac{5}{8}$	"
The length of the second was - - -	$2\frac{3}{8}$	inch.
width " " - - - -	$1\frac{1}{16}$	"
thickness " " - - -	$\frac{9}{16}$	"

Trepanning of the inferior Maxillary Bone, and removal of a piece of the nerve of the same name.—Dr. Mason Warren related a case in which an operation had lately been performed by Dr. J. C. Warren, on a patient who had suffered the most excruciating torture from neuralgia, without any relief from long-continued and various modes of treatment. Since the operation there had been no return of the paroxysms. The bit of bone, marked with the groove for the passage of the nerve, was exhibited.

Effusion into pleural cavities suddenly fatal after scarlet fever.—Dr. C. E. Ware had attended a child, four or five years of age, with mild scarlet fever, from which the convalescence was good. A week after his discontinuance of visits, he was recalled, and found general anasarca. Under the use of diuretics, as uva ursi, this disappeared, and quinine had been prescribed and taken one day.

The next morning, the child was well enough to be playing about the house, but was observed to have a little shortness of breath, which gradually increased towards the latter part of the day, unaccompanied by any other symptoms. After taking a light supper, the dyspnœa became rapidly worse, and the child died in about four hours, from a gradually increasing suffocation. Percussion of both backs gave a dull sound, and there was absence of the respiratory murmur. Dr. W. diagnosed rapid dropsy of the pleural cavities. A similar case had occurred in his practice a year or two since.

Polypus of the Intestine.—Intussusception.—Dr. J. B. S. Jackson exhibited the specimen from a patient of Dr. C. Wild of Brookline, a female of seventy-five years of age. Although the bowels were habitually regular, she had taken aloetic pills twice, during the three weeks prior to her disease, on account of vertigo, &c.; these had operated mildly, and on a Sunday, she took the same for the third time; on Monday she had three discharges, and with the third, while in the privy, was seized with severe pain in the region of the cæcum. Dr. W. being called, discovered a tumour in the seat of the pain, tenderness about the umbilicus, with tympanitis in that region, and a contraction along the arch of the colon. The pain was relieved by an enema, and returned only once, and that but for a short time; there was a little nausea on Tuesday; she continued much prostrated until Friday, and then died. During these five days, large enemata, several ounces of castor-oil, and one day five drops of croton oil were administered; the enemata were generally followed by discharges of bloody water; there was no fecal dejection after Monday, and no tenesmus except after the enemata. The tumour continued until death.

The specimen showed a polypus the size of the thumb, in the small intestine,—three feet from the cæcal valve, attached by a short pedicle; the invagination commenced here, and the polypus protruded into the large intestine three inches beyond the valve, and the whole was closely impacted —much swollen and infiltrated with serum and blood, and of a deep red colour. Above the invagination, the intestine contained a great quantity of liquid, and some oil; and below it was proportionately contracted.

Statistics of Cancer.—Dr. L. Parkman gave the result of the examination of the Hospital Records upon this subject. It appeared, that in 1847 there had been twenty-four operations for cancer,—four times as many as in any year since 1822, when the hospital was opened. This was in a considerable degree to be attributed to patients being attracted by the advantages to be obtained from etherization. Of cancer of the breast, there had been seventy-five cases since the opening of the hospital, and five of these had died: two of erysipelas, and three of internal disease, which existed at the time of operation, and should have precluded it. The results as regards the future state of patients, could not be known: the only fact shown was, that the operation was not a dangerous one.

24*th. Ovarian Cyst.*—Dr. J. B. S. Jackson presented the specimen from a patient of Dr. Thaxter, of Dorchester, a lady fifty years of age, married at forty, and who had had one child. The disease was of about four years' duration, and nearly six hundred pounds of fluid had been drawn off at different times,—sixty-four pounds even at one operation; the fluid was colourless and glutinous. The chief suffering was from distension, and the patient gradually sunk under the disease. The diseased mass, as shown to the Society, consists of one very large, dense, whitish cyst, with numerous smaller growths. These latter varied from one to five inches in diameter, and are of a regular rounded form, some being pedunculated, and others attached by a hard base to the interior of the large cyst. On being cut through they seem to consist, mainly, of an extremely viscid, gelatiniform substance, nearly, or quite transparent; mostly colourless, though in some of the masses deeply tinged with blood, and in a few of them is seen a soft, yellowish, opaque deposit; this is contained in a coarse lax cellular tissue, and surrounded by a membrane that is easily ruptured; no appearance of encephaloid disease. The uterus is much elongated, especially upon the side corresponding to the cyst, as so often happens in this disease. Right ovary healthy.

Congenital Abscess of Lachrymal Sac.—Dr. Bethune has observed this in a child, existing from its birth. He supposed it dependent upon malformation of the passage. A style was passed, though it was uncertain whether it did not pass by the os unguis. Dr. B. did not find similar cases recorded, except one by Berârd, of a congenital fistula of the sac.

May 8th.—Imperforate Rectum.—Dr. S. Parkman was called to the child fifty-two hours after birth, a male, born under the care of a midwife. No stools had passed; the abdomen was greatly distended and tympanitic, and the superficial veins much distended; there was constant vomiting of a thin yellow fluid. The anus was well formed and admitted the finger about half an inch. No protrusion, however, was felt. A trocar, and afterwards a sharp-pointed bistoury were passed up about an inch and a half in the direction of, but without reaching, the gut. The child died a few hours after. The specimen, which was exhibited, showed the rectum enormously enlarged, this being the consequence of its formation, and not the result of distension, as the sigmoid flexure terminated in it of the natural size. The rectum terminated in a blind pouch more than an inch distant from the small portion connected with the anus. Only loose cellular tissue intervened between the two portions. The specimen is in the cabinet.

June 26th.—Encephaloid Tumour from Labium Pudendi Externum.—Dr. J. B. S. Jackson presented the specimen removed by Dr. Lewis. It is a perfect example of the disease, two inches in diameter and well defined. The patient is a respectable married woman, forty-three years of age. At the age of eighteen she had a disease in the left groin near the labium, which was removed a year afterwards. At the age of twenty-eight the disease reappeared, and was again removed. As the result of these operations a scar now remains about three inches in diameter and surrounded by warty excrescences, which are said occasionally to disappear. No warts upon the labia as in elephantiasis. The encephaloid mass exhibited was first noticed six months since, and has grown rapidly with an occasional twinge, but scarcely any pain; before the operation it was fleshy to the touch; of a rounded form; movable and situated just beneath the skin, which was not adherent, and but slightly abraded in one point; there was scarcely any discoloration.

Chronic Ulcer of the Stomach; Hemorrhage from the Splenic Artery.—Dr. J. B. S. Jackson presented the specimen sent by Dr. S. Salisbury, of Medway, and taken from a man, who for three years had suffered from pain referred to the right hypochondrium, and which, during the last year from its increase, had incapacitated him from business. Six weeks before death there had been a copious hæmatemesis, and this had occured at intervals of one or two weeks since. The countenance was sallow throughout the disease. The stomach, which is in the society's cabinet, presents, in the pyloric portion, posteriorly close to the small curvature, a pale circular ulcer an inch in diameter, without induration or thickening, and passing through all the coats. The pancreas forms the base of the ulcer, which is adherent to it. Some of the granulations of this gland are seen, though the surface of the ulcer is mostly smooth. The large open orifice of an eroded artery is very conspicuous, and examination shows this to be the splenic of full size, and as healthy as usual in persons past middle age. The lips of the orifice present nothing unusual, and there is no clot in the interior of the vessel. The pancreas is otherwise healthy, and also the stomach; which, however, was found, on dissection, full of coagula and serum. An interesting point in this case was the sallowness of the countenance, which is generally considered characteristic of malignant disease.

July 10*th.*—*Ovarian Cyst containing Hair, &c.*—Dr. J. B. S. Jackson exhibited the specimen. The case occurred some years since in the practice of Dr. Harper of Sandwich, and the specimen, preserved in spirit, has been recently brought to the city by Dr. Lewis, and is by him presented to the society for their cabinet. The patient was an unmarried female, forty-nine years of age, and died from an attack of cholera. The general health was not good; countenance sallow, and the enlargement of the abdomen dated from a severe sickness that she had had thirty-three years before death. The cyst contained, by estimate of Dr. H., not less than two gallons of a muddy chocolate-coloured fluid, and floating in this a mass of hair and fat, the size of a full-grown fœtal head. The hair grows from the interior of the cyst by a peduncle more than a foot in length, like a scalp lock; the pores upon the surface from which it arises being well marked as in one of Cruveilhier's plates, which is shown with the specimen. There are also one or two other quite small patches of cutis on other parts of the cyst from which hair arises, besides some scattering hairs, about the origin of which there seems to be no especial development. Connected with the large cyst, and opening freely into it, is another, nearly the size of the first, and filled with two distinct masses of hair that seem to have no connection with its interior. In the walls of each of these cysts, but especially in the smaller one, there is a very considerable bony deposit, but no appearance of teeth, nor anything like a distinct fœtal bone.

Art. IV.—*Experimental Inquiry into the correctness of M. Poiseuille's explanation of the purgative action of certain substances.* By Geo. Wymberley Jones, M. D., of Ga. (Extracted from an inaugural dissertation for the degree of M. D., in the University of Pennsylvania.)

M. Poiseuille declares, that when animal tissues are interposed between the serum of the blood and solutions of sulphate of soda and chloride of sodium, endosmose takes place from the serum to the saline solution. The inference drawn from this is, that the action of purgative salts upon the stomach and bowels of a living being, is a physical one; that, in short, the catharsis produced by these medicines, is nothing more than an endosmose of the serum of the blood, through the coats of the containing vessels to the saline solution within the intestine.

But the most remarkable of Poiseuille's assertions is, that he has discovered that the hydrochlorate of morphia exercises a peculiar influence over the direction of the current. He says that when it was added to the saline solution, the endosmose from the serum to the solution was considerably diminished, and its direction finally reversed.

Attracted by the novelty and interest of these announcements, I determined to try a series of experiments, with a view to ascertain how far the operation of all the cathartics was influenced, or might be explained by this endosmose; and to discover whether the action of the astringents would correspond with the requirements of the theory.

Accordingly, I caused four instruments to be made, after the fashion of Dutrochet's simple endosmometer: and as they were all exactly similar to each other, a description of one will suffice.

It consisted of a glass tube, one-seventh of an inch in diameter, and five inches in length, attached to a scale, which was graduated to the twelfths of an inch: its lower end expanded into a cup-shaped cavity, projected beyond the extremity of the scale; and the rim of the cup, instead of terminating in an edge, was rolled upwards externally so as to form a good place of attachment for the ligature, which bound the membrane, and thus to guard securely against the escape of the liquid within the tube.

In every case, the serum of the human blood was the liquid placed inside of the tube; in every case, a fresh gastric mucous membrane was the one employed; and in every case, the membrane was so arranged, that it should present to the external liquid the same surface with which that liquid would have been in contact had it been taken into the stomach of the living animal. In this manner, the surface of the mucous membrane, which, in the natural state, is next to the tunica propria, was always in contact with the serum; and the surface which usually faces the cavity of the stomach was always exposed to the external liquid.

The first thing to be done was, to verify Poiseuille's first experiment, and this was effected without any difficulty. Upon placing an endosmometer, containing serum, and covered at the bulb by a portion of the fresh gastric mucous membrane of a hog, in a solution of sulphate of soda,—endosmose took place from the serum to the solution: and the same thing happened when common salt was substituted for the sulphate of soda.

It then occurred to me, that a good test for the truth of Poiseuille's theory would be to try the effect of the astringent salts upon the direction of the current.

For if, according to his notion, the purgative salts operate by causing the endosmotic current to flow in one direction, the astringent salts ought to cause it to flow in exactly the opposite one.

Indeed, it is evident, that unless these two classes of medicines produce different directions of the current, the action of neither of them can be accounted for by endosmose; and Poiseuille's theory must be deemed untenable.

I therefore introduced other endosmometers, prepared as before, one into a solution of alum, and a second into a solution of acetate of lead. In both instances endosmose occurred *from the serum to the solution*, in the same direction as when sulphate of soda was used, but with somewhat less rapidity.

But it is my misfortune to disagree with M. Poiseuille on a still more important point; and that is the influence exercised by morphia, when added to a saline solution, in retarding and reversing the current. He used the hydrochlorate of morphia, but I preferred the sulphate, as being most commonly used in medicine.

I placed an endosmometer, prepared as before, in a solution of sulphate of soda; and when the usual action was fully established, added some of the sulphate of morphia. Finding no effect produced I added more—and more again, without causing the slightest diminution in the rapidity of the endosmose from the serum.

I will confess to considerable disappointment at the issue of this experiment. I felt anxious to verify that of Poiseuille: but all my endeavours to do so were of no avail. The morphia was obstinate and would not be persuaded.

But in order to ascertain the influence of morphia upon the direction of the current, the sulphate in solution was placed in a vessel by itself, and an endosmometer immersed in it as usual to about one-fourth the length of the instrument. The current flowed *from the serum to the morphia.*

The same effect was produced by the nitrate of potassa. A solution of tannic acid caused a current from the acid to the serum, with a rapidity which was diminished when the solution was made stronger.

When the infusions of black-hellebore, jalap, and colocynth, were employed as the external liquids, the results did not correspond with their cathartic action; the same thing was also observed of the solution of elaterium.

When, instead of the gastric mucous membrane of the hog, that of a woman, obtained shortly after death, was employed, the results were precisely similar to those already stated.

That there are phenomena occurring in the human body which are properly explicable by endosmose, is undoubtedly true; but that catharsis is one of those phenomena appears to me entirely inadmissible, and I confess my inability to understand how any man could infer that cathartics purged by means of endosmose, from the simple fact of serum permeating a membrane to mingle with sulphate of soda. If there had been no affinity between the liquids, there would have been no endosmose; for we know it to be dependent upon such affinity. Are we then to believe that the action of purgatives is dependent upon their affinity for the blood? And does it follow that because sulphate of soda produces a current from the *serum*, it would therefore produce a current from the *blood?* When, moreover, this latter fluid contains substances, organic and chemical, sufficient to modify and alter any endosmotic action?

How, by this theory, are we to account for the operation of purgatives endermically applied? how for the fact that a drop of croton oil placed on the back part of the tongue will act as a cathartic?

Art. V.—*On the use of the Warm and Vapour Baths.* By S. Kneeland, Jr., M. D.—Boston.

In a former number of this Journal, (for July, 1847,) we fully treated the subject of hydrotherapy, in as far as *cold* water forms a part of it: we would now complete the subject, by considering the use of *warm* water and *vapour* in medicine. Though, as we have formerly observed, *cold* water may be employed in many cases where *warm* and *hot* water are commonly considered necessary, still, there are certain diseased conditions, certain idiosyncrasies, where *cold* water will be found less beneficial than *tepid*, *warm* or *hot* water.

Physiological action of the Warm Bath.—This may, in a great measure, be inferred from the well-known phenomenon of life during warm weather, depending on increased peripheral circulation—the face becomes injected, as well as the general cutaneous surface; the pulsations of the heart, and the respiration are more frequent; the cutaneous and pulmonary exhalations are increased, and a proportionate increase of aqueous drinks becomes necessary to supply the waste. From this derivation from the internal organs, persons suffering from congestion of these organs find themselves better in summer than in winter.

From Hale's experiments, according to Magendie, it is proved that the movement of fluids through tubes is rapid in the ratio of their temperatures; that, the greater the heat, the more rapid the circulation. To prove this, *cold* water was injected into the mesenteric artery of an animal, the vein and anastomosing branches in the neighbourhood being tied; it returned by the vein in a given time:—the same quantity, at a *medium* temperature, and under the same pressure, passed eighteen times quicker; when *hot* water was used, the velocity of its passage was thirty-two times greater than that of the lukewarm fluid.

It must be recollected here, as well as for the cold bath, that the thermometer is not a sufficient guide, as what is warm for one, may be cold for another, according to individual sensibility. According to M. Edwards, (*De l'influence des agens physiques sur la vie*, Paris, 1824,) there is a great difference, in warm-blooded animals, in the power of producing heat, according to season; in summer the calorific power is less, in winter it is greater, than in spring and autumn. The same is, to a certain degree, true of our artificially increased temperatures; for instance, in the midst of winter, it would be improper, and perhaps dangerous, to take a person from a temperature of 25° F. and plunge him into a bath at 100° F., without passing through the intermediate degrees of heat; the system requires time to oppose its "spontaneous sedation" to the exciting effects of heat;—a much higher temperature than this may be endured, by gradually passing from one extreme to the other. The temperature of the human body is 98° F.; but, as the calorific power is different in different individuals, the indications for the application of heat can only be known from experiment, from the impressions of the patient, the temperature of the surface, and the visible phenomena during the application.

The *tepid* bath, from 86° to 92° F., is rarely used as a hygienic agent, as it deprives of caloric faster than the warmer bath, and does not possess stimulating properties enough to ensure reaction, like the colder bath. It is useful as a preparative to the *cold* bath.

The *warm* bath, from 92° to 100° F., increases the activity of the circulation, and consequently of the respiration. In water at 98°, the pulse is slightly accelerated; at 101°, it is fifteen or eighteen more than usual; at 104°, it rises to 108–112; the respiration ordinarily is not increased under 101°; above this, it slowly increases, and at a prolonged heat of 104°, it becomes anxious and panting. This bath increases the cutaneous circulation at the expense of the internal organs, by exciting the superficial capillaries, relaxing and rendering more permeable the external tissues, and calming any morbid sensibility on which internal congestion may depend. It is commonly resorted to as a means of cleanliness, and by many, even in midsummer; it quiets restlessness, calms the nervous system, and may prevent many commencing diseases from internal congestion; but it is, as will be seen, much abused.

The *hot* bath, above 100° F., is rarely employed as a hygienic agent in modern times. The luxurious Romans used very hot baths, at all times of the day, even after meals; the effects are mentioned by Juvenal in his first Satire (lines 142–4):

> "Pœna tamen præsens, cùm tu deponis amictus
> Turgidus, et crudum pavonem in balnea portas.
> Hinc subitæ mortes, atque intestata senectus."

They were in general use till the time of the Emperor Octavius Augustus, whose disease, after having been aggravated by them, was cured by the cold bath by his physician, Musa; the old doctrine was then proscribed, and the cold bath came into favour. After the first spasmodic action on entering the hot bath, the skin becomes red and swollen; the carotids pulsate forcibly, the heart feels oppressed by its rapid beatings, the respiration becomes frequent and painful—a copious sweat soon relieves of a portion of the excessive caloric, but all cutaneous evaporation is imposible—pulmonary and cerebral apoplexy may be the result of this artificial plethora. The immediate effects are stimulating; but the consecutive are highly debilitating, from the numerous and excessive losses, and the spontaneous sedation which follows every powerful excitation. The temperature of the body, thus raised, remains above the natural standard a certain time; thus explaining how certain nations expose themselves with impunity to great cold, after the hot and vapour bath: but it would be a sad mistake to suppose that any accumulation of heat, in the ordinary warm bath, can preclude the necessity of avoiding exposure to cold, on leaving it; as such immunity would only follow temperatures much higher than the usual ones.

The frequent use of the warm bath as a hygienic agent, is a most pernicious custom; though it excites for the moment, and gives a sensation of warmth and well-being, it leaves the body more or less exhausted, and the surface more susceptible to cold. Contrast this with the tonic qualities of the cold bath, and the superiority of the latter must be evident. The warm bath, then, relaxes and weakens, renders the skin morbidly sensible, and disposes it to the reception of contagious diseases; it disposes to apoplexy, by the artificial plethora it causes: even Hippocrates knew this, for he says (5th section, Aphorism 16):—"Calidum eo frequenter utentibus has affert noxas: carnis effœminationem, nervorum impotentiam, mentis torporem, sanguinis eruptiones, animi deliquia: hæc quibus mors." From the too frequent excitement of the cutaneous surface, its arteries, veins, nerves, and lymphatics become enlarged; and from this excess of nutrition, diseases of the skin become more common and more obstinate.

Therapeutic effects of the Tepid, Warm and Hot Bath.—As heat is the essential necessary element in every vital phenomenon, it may well be conceived, that our artificial methods of applying caloric, this "radical stimulus of the vital sense," must be of great utility in certain diseased conditions.

General action.—The tepid bath is a most soothing and calming application, when not heated so as to quicken the circulation; and may be used with advantage in most inflammatory diseases. In the sensation of languor, heaviness, and feeling of fatigue, or what the French call "courbature," the tepid bath, from 90° to 93° F., will frequently prevent the occurrence of fever; a refreshing perspiration breaks out while the pulse and respiration remain unaffected; it acts thus only when long continued, the first effect being emollient, the second diaphoretic. In hot climates, and during our summers, the tepid bath is more refreshing than the cold bath; it restrains inordinate perspiration, calms arterial and nervous excitement, without the sometimes unpleasant reaction of the cold bath: judiciously used, it will prevent many diseases arising from excessive heat.

The action of the tepid *affusion* is very different from that of the tepid *bath.* It would at first be supposed, that the *tepid* affusion might be employed, where the heat of the body is not high enough to render the *cold* affusion safe; or in those stages of fever, in which the heat does not exceed the temperature of health. But from the experience of Dr. Currie, the heat of the body is lowered more speedily by the tepid, than by the cold affusion; as the evaporation from the surface, on which cooling depends, is more copious; and the stimulus of reaction, by which heat is evolved, is absent in the tepid affusion. He accordingly employs it in fevers, where "the morbid actions are weakly associated, depending rather on the stimulus of preternatural heat, than on contagion, miasmata, the morbid contents of the stomach and bowels, or local inflammatory affection"—as in most of the feverish affections of children, in which this affusion diminishes the heat, the frequency of the pulse and respiration, and promotes sleep. He also employs it in feverish pulmonary affections, where the cold affusion would be dangerous; and in all cases, in which the cold affusion is recommended, where the fears or weakness of the patient, render the more powerful remedy questionable. The paroxysm of hectic fever is sometimes completely broken up, by the use of this affusion at the commencement of the hot stage.

The *warm* bath, according to Dr. Forbes, (*Cyclopedia of Practical Medicine*, art. *Bathing*,) is useful in chronic, nervous, and spasmodic affections, unattended by inflammation and plethora; in painful non-inflammatory diseases, as neuralgia, calculi in the different canals; preceded by bleeding, in acute inflammation of the abdominal and pelvic mucous membranes; in cachexial, with irregular distribution of blood, and functional derangement.

The warm bath is of great utility in chronic cutaneous affections; according to Gibert, it is useful in all their stages. Alibert says, "Les bains tièdes conviennent donc dans presque toutes les affections herpetiques. Non seulement ils concourent à la guerison, mais ils peuvent l'operer dans quelques circonstances sans l'intermède d'aucun autre moyen curatif." Falconner says, the adult body absorbs ℥48 hourly, in this bath.

According to Dr. Currie the heat is diminished during the cold stage of intermittent fever, not only on the surface, but over the whole system; he has found it, under the tongue and in the axilla, as low as 92° F., and at the extremities some degrees lower. "At this time," says he, "the stomach feels cold, and universal tremor takes place. Warm, and even hot liquids, are highly grateful, and the warm-bath, heated to 100°, more grateful still. The drinking of warm liquids should be freely indulged in, and there is reason to believe that immersion in the warm bath, as prescribed by Galen, would be found as salutary as it is grateful." The pulse increases in force and frequency, and the heat begins to rise.

In mental derangement M. Esquirol advises laxatives one day, and the warm bath the next; and he found this method very successful: at the Salpetrière he has used it even as long as eight hours at a time, and has never found it debilitating, when forty-eight hours were allowed to elapse between the applications; he used cold to the head at the same time. Mr. Davidson, in the Lancaster Asylum, used a bath at 85° in cases accompanied by vasuclar excitement.

In dyspepsia, accompanied by gastro-intestinal inflammation, in which irritating medicines would be injurious, the warm bath is very useful, by restoring the usually deranged functions of the skin; and in affections that seem to depend on an irregular or diminished action of any portion of the alimentary canal, in which the cutaneous function is almost always deranged. The relaxing effects of the warm bath are of well known utility in reducing strangulated hernia, dislocations, &c. A half an hour's immersion in a bath at 98° will cut short many a threatening rheumatism.

The proper time to take the warm bath is about an hour before dinner; it should never be taken after a hearty meal, even after an interval of some hours.

"By relieving pain and irritation, they are sedative; by restoring deranged functions, indirect tonics; by soothing the nervous system, antispasmodic; by modifying the extreme circulation, derivative; by action on the skin, diaphoretic; by these combined, alterative." The increased sensible perspiration diminishes the heat of the body during immersion; but as it continues for some time after leaving the bath, it becomes a powerful refrigerant.

The *hot* bath, from its reaction towards the skin, is very frequently employed in chronic cutaneous affections with atony of the integuments; when very hot and of short duration, it vividly excites the surface, causing "critical evacuations," which are, however, more safely and as surely produced by the "sudorific process." When exanthematous eruptions come out badly, the revulsion of the hot bath is often beneficial; but, as it must be employed uncomfortably hot, and of short duration lest the effect be too debilitating, the sudorific process, or the cold affusion is better, and less dangerous when apoplexy or hemorrhage is to be feared. The same revulsion is of use in chronic irritation of muscles, nerves, articulations, and the abdominal viscera; but its dangers will prevent its becoming of general use, especially as cold water and the vapour bath are more efficacious; it has been employed in these cases at 109° F.

In cholera very little is to be hoped from the administration of medicine, from the almost complete cessation of the absorbent power of the internal surfaces. Mr. Rankin, of Calcutta, (*London Medical Gazette*, March, 1844,) uses long continued hot baths, during the stage of collapse, at 110° to 115° F. for an hour or more, until the "restored circulation indicates the removal of that obstruction on which I conceive collapse, in cholera, to depend. A treatment which would be dangerous in collapse from long previous illness, or extreme exhaustion, and produce fatal syncope, is not so in a disease where copious sweats and rice-water dejections are the only visible causes of weakness." The most remarkable effect was the restoration of the functions of the skin. It may be well to compare this treatment with that of the free drinking of *cold* water (as described in the *Medical Magazine*, Boston 1833, Vol. 1st); the difference in the treatment may be in a measure owing to the difference of climate in the two cases.

The utility of this bath for the *cure* of disease is greatly diminished by the now better understood effects of the cold and vapour baths; but as a *preventive* of disease, it may be more generally employed with advantage.

Partial Application of the Warm Bath.—The tepid hip-bath is an excellent calmant in certain pelvic affections, as diseases of the bladder, retention of urine, urethral inflammation, uterine diseases, fluor albus, chronic diarrhœa, and the various excitations of the genito-urinary system. The hot hip-bath is extremely useful in facilitating tardy or insufficient menstrual discharges by directly drawing the blood to the uterus; and in many spasmodic abdominal affections.

The hot pediluve and manuluve are often employed as revulsives, especially the former, in cerebral affections accompanied by determination of blood to the head, with vertigo, tinnitus aurium; in the paroxysms of asthma; in diseases of the eyes. The hot manuluve is too much neglected; it is of great and speedy efficacy in congestive headaches, and in irregular distributions of blood to the cerebral and thoracic organs. The repelling power of cold may be advantageously joined to the attractive power of the hot pediluve in cerebral congestion, by using cold applications to the head. The tepid pediluve, and tepid evaporating lotions, relieve greatly the pain of the gouty paroxysm.

The hot *douche*, as well as the cold, is of great utility. Strictly *local* diseases should, as a general rule, be treated by the hot *douche* instead of the hot *bath*, unless they are merely the manifestation of a constitutional affection, in which case the diathesis requires the general bath, and the symptoms the douche. The douche has this great advantage, that it does not cause the general plethora which forms so great an objection to the hot bath; while it produces even more cutaneous excitation, as the heat may be borne much higher than when the whole body is exposed to the medium; and the shock is a powerful excitement in itself. It will be found of advantage in local paralysis, glandular enlargements, rheumatic and neuralgic pains, diseases of the joints, indolent tumours, and all local affections accompanied by atony.

M. Lehmann (*Journal des Connaissances Medico-Chirurgicales*, April, 1835) proposes the following treatment of croup, which is less startling than the cold affusions to the back employed by the Russians; he has met with the happiest results from this treatment, which, however, must be applied before the formation of the characteristic exudation. It consists in applying to the laryngeal region a sponge dipped in water almost boiling (but not hot enough to produce vesication) after pressing out some of the liquid; others are substituted every few minutes until a vivid redness is seen, usually accompanied by a general perspiration, which should be kept up by warm drinks; the dyspnœa, hoarseness, and croupal cough, disappear often, as if by magic. Though this should prove useful only in one case in a thousand, it merits a trial in this common and fatal disease.

As a local emollient warm water is of the greatest value. It penetrates and softens the tissues, rendering them more tense without inducing an afflux of blood; it relaxes the hardness of inflammation, diminishes pain, and promotes resolution. The superiority of warm water to poultices is every day becoming more manifest; no one insists more strongly on this point than Dr. Macartney. Once the excuse of impracticability was enough for the advocates of the cataplasm; but now hot water and steam may be employed in as simple a manner: in fact, the poultice is unfavourable to absorption, weighs more, costs more, smells worse, and is less easily obtained and applied than the warm water; we hope the time is not far distant when, like the University Hospital, (or the wards of the late Mr. Liston at least,) every hospital in our own country will banish from its walls this nuisance, alike offensive to the eye and nose.

Hot water also softens inflamed tissues, but, by causing an increased afflux of blood, it promotes suppuration; hence it should only be applied when suppuration is inevitable, in order to hasten and render less painful this process.

It is well known that heat is highly favourable to the healing of wounds; better proof of this cannot be given than the testimony of Baron Larrey, who found the wounds of the French army heal very readily under the burning sun of Egypt; while in the Russian campaign they healed very slowly, degenerating into obstinate ulcers, and many trifling ones proving fatal. Percy says that nothing can replace warm water as an application to recent tumours, which are usually covered by poultices, &c., as contrary to nature by their weight as by their constituents: he says, "S'il fût possible dans un coup de feu ou tout autre blessure grave d'imerger la partie blessée dans l'eau, â une temperature convenable, pendant les dix a quinze premières jours de l'accident, il y aurait bien moins d'amputations, et l'on conserverait la vie a beaucoup plus de blessés." The ancients advise warm water in inflammation accompanied with fever, great itching, &c.—indeed very little can be added to what Hippocrates says in the 22d aphorism of the 5th section." Calidum suppuratorium, non in omni ulcere, maximum signum ad securitatem : cutem emollit, attenuat, dolores sedat, rigores, convulsiones, tetanos mitigat: capitis verò gravitatem solvit: plurimum autem confert ossium fracturis: maximè vero denudatis: ex his quidem maximè qui in capite ulcera habent: et quæ a frigore moriuntur, aut ulcerantur: et herpetibus exedentibus: sedi, pudendo, utero, vesicæ. His calidum quidem amicum et decretorium, frigidum vero inimicum et occidens."

Water may produce rubefaction, vesication, or escharification, according to its temperature. Boiling water is used in surgery, often with great carelessness, and almost always without a precise knowledge of its powers. In Hufeland's Journal for 1843, M. Ruppius gives two cases of the successful employment of boiling water in callous fistulæ; the advantages are, that it loses its temperature quicker, and does not destroy all the tissues as does the red-hot iron. To ascertain the effects of water at different temperatures, we shall allude to the experiments of M. Trousseau on the "water hammer," (marteau d'eau) first used by M. Mayor, of Lausanne. A steel hammer with a handle of wood, is plunged into boiling water; when heated, this is applied to the skin—the pain is acute, and the skin is discoloured and sunken; there is a true eschar. With water at 176° F., an eschar is also formed, if the hammer be large; at 158° a phlyctena is formed, and when the epidermis is raised, a kind of false membrane is seen, which is a superficial eschar of the dermis; as albumen coagulates at 158°, when this degree of heat is applied to the capillaries of the dermis, the albumen is coagulated, and becomes a foreign body or an eschar. To determine if any of the elements of the dermis were disorganized below 158°, M. Trousseau commenced the application of the hammer at 122° and gradually ascended towards 158°. At 122° the hammer caused rubefaction, which sometimes lasted an hour if the hammer were kept in contact with the skin till it cooled. At 131° the pain was severe and the rubefaction permanent. If when the hammer was slightly cooled, another was applied at the same temperature, a bulla was formed, without disorganization of the dermis. At 140° the pain was hardly supportable; a single application produced vesication, repeated application caused a superficial eschar. At 150° by repeated application an eschar formed, for, though albumen does not coagulate at this heat, fibrin condenses and contracts at a much lower temperature. To recapitulate: the hammer of Mayor produces an eschar even as low as 158° F.; repeated application at 150°

produces superficial mortification of the dermis, and always causes vesication; between 130° and 150° there is vesication, usually without mortification.

The end proposed by the application of boiling water is to excite at all hazards the deadened sensibility, as in apoplexy and comatose affections, to produce vesication. We have seen that there is no necessity for employing water at 212° to produce vesication, as water at 150°, and even lower, will have this effect. It is only necessary to glance at the three degrees of burns from water to perceive the singular difference in the effects according to the temperature; the mortification of the whole dermis (the third degree) takes place where the boiling liquid falls on the naked skin; the mortification is superficial at the edges of the burn, and when the water has a little cooled, the second degree is where the water burns through the clothes, or at a lower temperature, and, by degrees we descend to simple rubefaction. How absurd, then, and dangerous to employ water at 212°, when water at 140° will answer as well? This practice is the more dangerous that the diseases in which it is chiefly used are those of advanced life, in which the burns (usually on the extremities) will often result in incurable infirmities. We think this subject merits further consideration; and that the "hammer of Mayor" may be used with the utmost advantage in those affections where the moxa is indicated.

Internal use of Warm Water.—Warm water taken into the stomach is calmant; in large quantity, emetic from mere distension; in continuous draughts, it acts mechanically as a laxative. At a higher temperature it excites the stomach, and by radiation the whole system; it is sudorific, from the movement of expansion towards the skin; it will frequently stop stomachal and intestinal spasm much quicker than the usual external applications.

The utility of enemata of warm water is too well known to require notice. In the *Medico-Chirurgical Transactions*, (1841,) Dr. J. Wilson mentions that colica pictonum is most successfully treated by the warm bath, and enemata of the water during immersion; if, as Andral supposes, the constipation depend not only on paralysis of the intestinal muscular coat, but on a diminution of the intestinal secretions, copious draughts of warm water would also seem indicated. In certain cases it is important to take advantage of the absorbent powers of the large intestine, as in cholera. In the Medical Magazine (Boston, 1833) diluent injections are highly spoken of as a means of restoring the fluidity of the blood, which is so remarkably altered in the latter stages of cholera: when absorption is totally suspended and the most powerful stimulants fail to excite the circulation, the author (Dr. O'Shaughnessy) would not hesitate to inject some ounces of warm water into the veins: he says "it should also be remembered that this mode of medication has, in many a desperate disease, been practised with success, and that by some of the most cautious and experienced physicians in the world."

Mr. W. Lyon, (*London Medical Gazette*, 1844,) extols injections of warm water into the uterus as a means of facilitating labor. This has been applied in two cases in which the waters had long been discharged, and the uterine contractions had ceased; in one case the forceps, and in the other version would have been necessary: an injection of a pint of warm water brought on the pains, and speedy, safe delivery; though the details are not given with much precision, it may be a useful hint.

Every surgeon knows that there is a spasmodic stricture of the urethra, in which slight exposure, intemperance in eating or drinking, &c., bring on a complete retention of urine: this may endure for days, and the distended bladder and urethra may slough; the treatment as laid down in surgical works, is by bougies, venesection, warm-baths, opiates, and finally puncture of the bladder. The following is the simple but effectual treatment of M. Amussat. He passes a catheter down to the seat of the stricture; he then inserts into the catheter the pipe of an India-rubber bottle, filled with warm water; a slight pressure is exercised upon the bottle; the water, like a liquid catheter, accommodating itself exactly to the shape of the stricture, is more apt than any other means to resolve the spasm. A possible objection that it is dangerous to submit the distended bladder to any more pressure is not valid, as it is more dangerous to wait; the method of Amussat is certainly preferable to the dangerous operation of puncturing the bladder. Cold affusion to the genitals might aid, or even supersede this treatment.

Physiological Action of the Vapour Bath.—It may be well to consider here the comparative healing powers of air, water, and vapour; and the different temperatures at which each may be borne.

How high can the animal temperature be raised? To answer this let us allude to the experiments of Magendie, as detailed in the *Gazette Médicale de Paris* (for April 27, 1844). Let a rabbit or dog (whose normal temperature is 102° F.) be placed in air at 212°, and another in air at 140° the blood in the first will be heated quicker, and death will ensue sooner than in the last; but the temperature of both at death will be 111°, an increase of 9°; seeming to show that in animals there is a limit to the increase of temperature. A bird (whose normal temperature is 111°) will die when its temperature is raised to 120°, showing the same increase of 9°.—Is the same true as regards man? It is owing to this increase of temperature that the Russian may plunge with impunity into icy water on leaving his vapour bath, the excess of the body's caloric neutralizing for a time the coldness of the water.

In the animal subjected to these experiments, the arterial blood, at the moment of death, was as black as venous blood, and did not redden on exposure to the air; it had lost its coagulability, rendering it less proper for circulation and more prone to leave the vessels; hence frequent epistaxis, injected conjunctiva, and subcutaneous extravasations resembling the ecchymoses of scurvy and purpura. How is this increase of temperature effected? by the skin, or by the lungs? To determine this Magendie placed a rabbit with his head alone in the stove; the temperature of the rectum in a given time was slightly elevated—he placed another with his body alone in the stove; and at the end of the same time the temperature of the rectum was much more elevated; he concluded that caloric penetrates into the system rather by the skin than by the lungs. In hot air, an animal loses weight by evaporation, not according to the degree of heat, but according to the time spent in it; in hot vapour, an animal does not lose weight, (and even sometimes gains,) either on account of the vapour deposited on the surface, or because the fluids evaporated have been replaced by the vapour absorbed.

From the observations of Fordyce, Blagden, and Dobson; and Berger and Delaroche (*Thèses de Paris*, 1806, No. 11), it appears that man can endure a dry heat of 230° F., and even higher, while the vapour bath cannot be easily endured above 120° F. Animals have been found to die at a much lower temperature in the vapour, than in the air bath; this may well be understood from the fact that in the former, already saturated with moisture, the pulmonary exhalation cannot take place; the cutaneous *evaporation* is, for the same reason, null. The abundance of the cutaneous *transpiration* is not sufficient to counterbalance a great amount of caloric; and watery vapour is a better conductor of heat than dry hot air. This difference should be borne in mind, in prescribing the vapour bath.

Magendie found that animals die quicker when the *body* only is plunged in a vapour bath, than when the *head* only is introduced; which would not, *a priori*, be supposed. The vapour bath is frequently given to the body only; sometimes a current of hot vapour is directed immediately to the lungs: in the latter case (or in fumigations) the temperature may be elevated much higher than in the former; the body can rarely support a vapour higher than 122° F., while fumigations may be borne easily at 140°; showing that the lungs are less sensitive to caloric than the skin. To show that the lungs do but little towards heating the body, in this bath, Magendie kept a rabbit for 20 minutes in water at 50° F., its temperature then being 70°F.: it was placed in a temperature of 194°; in 15 minutes more it was taken out expiring, the temperature in the rectum being only 77°, instead of 111°: the heat was mostly taken up in evaporating the water filling the animal's hair, so that the system could be affected only by the lungs; with what effect has been seen.

On leaving both the vapour and hot air bath there is thirst; that from the vapour bath soon disappears without drinking, while that from the hot air bath yields only to drinks. In the former the blood is simply heated, in the latter it is also deprived of a certain amount of its watery part—in a warm summer's day a piece of metal held in the mouth will diminish thirst by diminishing the local heat, if copious perspiration have not taken place. When an animal dies in the vapour bath, the lungs and large vessels contain but little blood; as in the hot-air bath, most of it is attracted towards the periphery, where it is extravasated.

According to Dr. Forbes, as a general bath water can hardly be borne at 120° F., Rostan bore it with difficulty for half an hour at 115°; the heat of the Russian or Egyptian vapour bath is much above this. From the experiments of Dr. Edwards, frogs will live but two minutes in water at 104° F., though the head was not immersed; while they lived in vapour at this temperature, breathing it more than five hours. The case is somewhat different if the vapour be not breathed, as a much higher temperature may be borne, since the cooling process of pulmonary evaporation is not impeded. Dr. Forbes gives the following table of the equivalent heating powers of vapour and water:

	Water.	Vapour not breathed.	Vapour breathed.
Tepid,	85°–92°	96°–106°	90°–100°
Warm,	92°–98°	106°–120°	100°–110°
Hot,	98°–106°	120°–160°	110°–130°

At corresponding temperatures the vapour bath causes a greater cutaneous transudation than the warm bath; and this is rendered still greater by the disproportionate degrees of heat, as indicated by the thermometer, which are to be considered as equivalent (see table). The vapour bath causes a greater accumulation of the fluids in the integuments from the greater rarity of the medium; hence it is the most powerful derivative. The thermometer should be more carefully consulted in using the vapour bath, as the gradual increase of temperature is not so easily perceived as in the water bath.

The vapour bath is not now used as a hygienic agent, except by the Turks and Eastern nations. In many institutions, as the Hospital of St. Louis in Paris, the public vapour bath is still extensively used as a therapeutic agent: it is arranged as an amphitheatre, the heat increasing with the elevation. But the solitary vapour bath in which the whole body, or all but the head, may be included, is most frequently employed in medicine.

When the body is plunged into a vapour bath of 80° to 95° F. there is felt an agreeable sensation of heat, accompanied by slight transpiration; the skin becomes covered by drops, not of sweat, but of the condensed vapour, which roll down the body as they do the walls of the apartment; the pulse is slightly accelerated, but the respiration is generally unaffected. After this bath the functional activity of all the organs is increased. At a temperature from 95° to 110° the skin becomes hot and reddened, the cellular tissue is swelled, the limbs increased in circumference, the muscular force is greatly diminished; the pulse quick and strong; the cutaneous vessels, especially of the head, are swollen and pulsate forcibly; the respiration is difficult; the perspiration abundant: in fine, we have the phenomena of the hot bath. There is, however, less susceptibility to cold after the vapour than after the warm bath. When the head is not included in the bath, these effects will be moderated, and the temperature may be much increased without an increased excitation of the system. The vapour bath is more diaphoretic and less stimulating than the warm bath; at a low temperature it is an excellent calmant.

In Turkey, where every village large enough to have its mosque has also its public vapour bath, the effects of its abuse are very striking. The servants of these establishments, sweating continually and drinking copiously in a state of comparative rest, almost always become dropsical; their flesh, as well as that of the most inveterate bathers, becomes pale and flaccid.

Therapeutic general Vapour Bath.—Like other therapeutic agents, the vapour bath has had its epochs of favour and discredit; it is only of late years that, thanks to Dr. Macartney and others, it has been considered as anything more than a last resource. Some have ascribed to it derivative powers alone; others maintain that it is only emollient, relaxing, or stimulating. From its physiological effects we may infer that its action in disease depends on its temperature and duration; on the extent of contact and force of projection for the local bath. It may produce a tonic, an emollient, a revulsive, an exciting, a diaphoretic, a sedative, and even a caustic effect, according to the physician's wish.

In acute inflammations, as a general rule, the vapour bath is contra-indicated, as it would increase the heat and febrile excitement; yet there are certain acute diseases, especially those resulting from or accompanied by suppressed transpiration, in which its sudorific properties may be eminently useful.

In intermittent fevers it has long been used with success. M. Rapou (*Annales de la Méthode Fumigatoire*, Paris, 1827) has often employed it in children and delicate adults in whom the powers of reaction are feeble; it should be administered at the beginning of the paroxysm, or just before it is expected; by it the paroxysm is shortened, and sometimes prevented: it should be continued till the commencement of the hot stage, and the sweating stage should be treated by warm drinks. He gives several instances in which various intermittent diseases were thus cured. Indeed the popular opinion is just, that these fevers may often be cut short by an abundant transpiration; the French soldiers get rid of this fever by hot alcoholic drinks, and even by a mixture of gunpowder in brandy, which causes a profuse perspiration and consequent relief. Vapour will have the same effect with less danger and inconvenience.

In what the French call "courbature," or a general feeling of uneasiness, with dull pains, after any unusual fatigue; in what we call a "chill," the precedent of the various affections resulting from cold and moisture; in sudden suppression of the perspiration, so fruitful a cause of disease;

in these, the vapour-bath, at a temperature of 96° to 102° F., will, in most cases, if instantly applied, prevent disease, by re-establishing the cutaneous functions; it may be usefully employed at any time before the actual existence of inflammation. The "catarrhal state" is not a state of inflammation, and is injuriously modified by antiphlogistics; still, it often presents alarming symptoms, great fever, headache, &c.; these apparently dangerous symptoms soon disappear on a natural or provoked re-establishment of the cutaneous functions. In pulmonary affections, Marshall Hall (*London Lancet*, 1844) is a strong advocate of a warm moist air; he advises that the chamber be warmed day and night by large basins filled with water at 180° F.; to this he thinks he owes the speedy recovery of a very grave case of pleuro-pneumonia; he has witnessed similar good results from this hygrometrical state of the air in bronchitis and hooping-cough. (See also his *Observations in Medicine*, chap. 10.)

For the same reason that common catarrh is cured by abstaining from liquids, and thus diminishing the secretions of the mucous membrane, and by derivation to the surface by sweating, an intestinal catarrh will be modified by the same treatment—whatever be the explanation, it is certain that an aqueous diarrhœa may often be cured by sweating. (See *Hooper's Medical Dictionary*.)

Dr. Clark, of India (*London Medical Gazette*, April, 1844), treats cholera by the vapour-bath, to cause reaction. This is, by many, ranked as a disease of the digestive organs, but he thinks that the rice-water stools, the scanty urine, and the collapse, are more likely the result of the quantity and quality of the blood sent to the different organs; he considers it a disease of the circulating system—it may arise, as remarks Mr. Annesley, from the blood not receiving sufficient oxygen from the air.

According to Corbel (*Essai sur l'emploi Hygiénique et Medical des bains. Thèses de Paris*, No. 469, 1837) the vapour-bath was once in great vogue against sterility. Sanchez extols it not only in sterility, but during pregnancy, and after delivery; he adds, that by it the Russian women spare themselves many chronic diseases connected with the uterine functions. Rapou and Chaussier (at the Maternité) confirm this opinion and practice of Sanchez.

It is chiefly in chronic affections of the general system that the vapour-bath is beneficial, indeed, in the affections before mentioned as benefitted by the "sudorific process" by envelopment. This bath is less uncomfortable, and not less efficacious, than the enveloping process. The artificial plethora caused by it will be found of advantage in chlorosis, anæmia and scrofula, aided by friction of the surface.

In cutaneous diseases, vapour is universally allowed to be of the greatest efficacy; it is even of advantage in acute affections (as a revulsive), depending on, or connected with, pulmonary or gastro-intestinal inflammations; in chronic diseases, especially the squamous, it causes the crusts and scales to fall, and afterwards stimulates the skin, and restores its normal vitality. In dropsy and œdema it is of use in stimulating the cutaneous exhalants; and in the anasarca following some eruptive fevers. M. Rapou advises it in chronic pneumonia, hepatitis, metritis and gastritis, aided by friction; in neuroses, metallic colics, paralysis and nervous tremblings, it is the chief treatment at the St. Louis Hospital of Paris.

Its most frequent employment is in chronic affections of the articulations; in rheumatism, neuralgia, muscular contractions, false anchyloses, paralysis, gout; but in most of these the *partial* vapour-bath is preferable. In *acute* general rheumatism, muscular or articular, it is generally contraindicated from the violent fever; and in this stage, copious sweats without relief are quite common. But in *chronic* rheumatism, it has long been known on the Continent as a most powerful remedy; it seems to penetrate the skin more readily than water, and more quickly re-establishes its functions; but even in chronic cases, when the cutaneous irritation brings the disease to an acute stage, instead of acting simply as a derivative, the bath must often be given up. The cases most happily modified by it are those of long standing, of great mobility, with dry skin and increased pain from cold and moisture; here it may cure by a critical perspiration, or a substitutive irritation—it seems also better adapted to chronic *muscular* than to chronic *articular* rheumatism, when aided by frictions, and residence in a warm climate. The temperature may be from 95° to 105° F. for twenty to thirty minutes; an abundant perspiration comes on during and after the bath; the pulse, at first accelerated, soon becomes soft; the skin becomes moist and supple; and there is no fatigue or extreme sensibility to cold as after the *warm* bath. At first, it should be taken every other day; then, every day; and soon twice a-day.

The contra-indications and cautions are the same as for the warm-bath, when the vapour is breathed; when it is not breathed, it is well to use it cautiously in plethoric persons, during pregnancy, and in those disposed to thoracic or abdominal hemorrhage.

Partial Vapour bath.—This bath is more generally applicable in surgery than the general bath; it may be used as a half-bath, foot or hand bath, douche, or local fomentation. According to its temperature, it may produce every stage of action, from the most calming to veritable escharification. The temperature must depend on the sensibility of the part. Dr. Wilson (*A practical Treatise on the Curative Effects of Simple and Medicated Vapour, applied locally*, by James Wilson, M. D., London 1837) makes three classes of cases; in the first the sensibility is exalted, and the vapour should be employed at a low temperature, as in erysipelas, acute gout, and irritable ulcer;—in the second the sensibility is diminished, and the temperature should be increased, as in indolent ulcer;—in the third the sensibility is diminished externally from its increase internally, as in white swelling, chronic synovial inflammation, and chronic articular rheumatisms;—in these the temperature should be high. The temperature should be gradually increased as the tissues become accustomed to the stimulus; as the "habit of inflammation" renders a tissue less apt to be influenced by therapeutic agents, the vapour must be at a higher temperature, of longer duration, and more frequently repeated in chronic than in acute affections.

In erysipelas accompanied by great pain and redness, steam at a moderate temperature will diminish the sensibility and restore the natural secretions of the skin; in the chronic erysipelas, which is so apt to fix itself about the large joints, vapour at a higher temperature may be used; but never the steam of *boiling* water, unless moderated during its progress to the part.

Acute gout, as far as the local affection is concerned, is most advantageously modified by the tepid or vapour bath, especially by the latter, which is more speedy in its action.

In speaking of particular diseases we might allude to the writings of Dr. Macartney; but as these are well known we may adduce the testimony of Dr. Wilson, his pupil, who has made the treatment of diseases by vapour his especial study.

When rheumatism is confined to a single joint, the general vapour-bath is inferior to the partial bath, for obvious reasons; indeed the former may be dangerous in certain cases; M. Gibert says (*Maladies de la peau*, p. 44), "I have seen a hemiplegia, followed by death in a few weeks, manifest itself where a vapour bath has been administered without precaution to a slightly plethoric individual who had slight rheumatic pains." Dr. Wilson isolates the diseased joint by impermeable coverings, and exposes it to the vapour an hour at a time, for a week or more, occasionally rubbing it with a strong camphorated liniment, and covering it warmly with flannel; he has thus speedily relieved cases which had obstinately resisted the stimulating liniments and plasters in common use. The douche of hot vapour is equally efficacious in muscular rheumatic pains.

In chronic synovial inflammation, so well described by Brodie, the local vapour bath may advantageously replace the blisters, issues, setons, moxas, and other counter-irritants commonly employed. Where the disease has not gone on to ulceration and suppuration, leeches should first be applied to subdue any inflammation; the joint should then be exposed to vapour as hot as it can be borne for two or three hours: while excited by the steam the joint should be rubbed with a camphorated liniment; the steaming and rubbing should be repeated daily; in the intervals the limb is to be kept in a state of perfect rest.

The steam bath is also of signal efficacy in chronic inflammation of ligaments; of the sub-synovial cellular tissue; of the lining of the muscular and tendinous sheaths around the joints; in simple synovial irritation; in inflammation of the bursæ mucosæ with effusion.

In white swelling, properly so called, (for this has often been confounded with chronic synovial inflammation,) the disease commences in the bone, and gradually involves the soft parts. As we understand it, white swelling consists in the deposit of tuberculous matter in the bone, and, therefore, not much benefit can be expected from treatment in the *adult;* but in the *young*, in whom the terrible law of Louis has some exceptions, we may hope to arrest the affection by proper treatment, and to remove, perhaps entirely, any existing disease by the use of iodine and its combinations.

Chronic muscular contractions may often be made to disappear by the jet of steam, aided by simple and medicated frictions; as torticollis, and certain curvatures of the spine.

It has been much extolled in paralysis not depending on lesion of the nervous centres; in paraplegia, where the immediate cause has been removed, and in local paralyses from metallic emanations; in tic douloureux, and the various forms of neuralgia.

In the exanthemata, where the fever accompanying the eruption is too violent, the vapour should be only emollient, but long continued; when gastric, or pulmonary irritation prevents the due appearance of the eruption, the vapour should be slightly stimulating; when there is retrocession of the eruption, the vapour should be of a high temperature.

In scaly and crusty eruptions vapour is more soothing and emollient than warm water, and more grateful to the irritated surfaces. Where the sensibility is diminished, as in the obstinate affections of the scalp, it is a powerful aid to the usual topical stimulants.

Vapour is of great utility in inflammation of mucous membranes; in otitis, ophthalmia, inflammation of the mouth and fauces, bronchitis, and inflammation of the genito-urinary system; in rheumatic laryngitis, and in aphonia. M. Ribes has shown that hardened wax in the ear is a frequent cause of ulceration or other disorder of the tympanum; this may be prevented by the vapour injection.

In painful wounds vapour is the best possible calmant. We will mention a case of Dr. Macartney. He had received a severe lacerated wound in the palm of the hand from the teeth of a dog, a part of the palmar fascia being withdrawn; the pain was most intense; he plunged his hand as soon as possible into aqueous vapour and kept it there for several consecutive hours; within a half an hour the pain was entirely removed; says the professor "the wound healed in a very short time, *without any of the phenomena of inflammation.*" In contrast with his own case, he relates the following: "A gentleman of my acquaintance received a slight punctured wound in the hand from the spur of a game-cock. It was treated by poultices in the first place: in fact it was treated as those wounds usually are; to wit, there were leeches, medicine, three surgeons, plenty of consultations, and—*a year's confinement cured him.*"

In the words of Dr. Wilson "Should it be imagined by some that the recital of the therapeutical effects of steam now given is exaggerated, I can only refer them to the agent itself; let it be tried. For my part, I cherish the hope that a day will come when this simple, harmless, and manageable application will altogether supersede a long list of complicated and uncertain remedies that now confuse both the patient and the practitioner."

Boston, *Aug.*, 1848.

Art. VI.—*New Operation for the Radical Cure of Varicocele.* By S. D. Gross, M. D., Professor of Surgery in the Medical Department of the University of Louisville.

The following operation for the radical cure of varicocele I have performed eight times within the last few years. The patients were all young men of good constitution, and they all recovered without a single bad symptom. The cure, so far as I have been able to learn, promises to be permanent in every instance.

During the operation the patient may lie down, sit in a chair, or stand up, as may be most convenient. The scrotum, previously divested of hair, is rendered tense by grasping it behind with the left hand. A vertical incision, scarcely an inch in length, is made over the anterior part of the tumour, down to the enlarged veins, which are next carefully isolated from the accompanying duct, artery, and nerves, by a few touches with the point of the scalpel. This constitutes the first step of the operation. The second consists in passing a short, thick sewing-needle—a No. 1 of the milliner, underneath two or three of the larger trunks, and winding around it a stout thread, either elliptically, or in the form of the figure 8. The ligature is drawn with great firmness, so as to indent the coats of the vessels, and put an immediate stop to the circulation. The operation is finished by closing the wound carefully with one or two twisted sutures, or a few strips of court-plaster. The patient is now put to bed, the scrotum is supported with a silk handkerchief, and light diet is enjoined. At the end of twenty-four, or, at most, thirty-six hours, the blood in the constricted veins is sufficiently coagulated to justify their division, and the removal of the needle. This is readily effected by insinuating a narrow, sharp-pointed bistoury underneath the vessels, with its back towards the needle.

Should symptoms of inflammation arise after the operation; or, in other words, should the parts become red, tender, and swollen, recourse must be had to antiphlogistics, and to the application of cold water, or solutions of acetate of lead and opium. The patient may usually sit up in five or six days, and in a few more he may be permitted to walk about.

The little wound soon cicatrizes; and the induration, caused by the coagulation of the blood between the testis and the seat of the constriction, gradually disappears by absorption. The period required for this rarely exceeds a month.

The advantages of the above operation are, first, its perfect simplicity and the facility with which it may be executed; secondly, its freedom from pain and hemorrhage; thirdly, the certainty with which we may avoid injury to the spermatic artery, duct, and nerves; fourthly, the little inconvenience or suffering which the patient experiences after it has been performed; and fifthly, the rapidity of the cure. These considerations will, I think, be found sufficient to recommend this method to the favourable notice of practitioners. Most of the operations described in the books are complicated, severe, and dangerous.

It occasionally happens in this affection that the scrotum is very flabby and pendulous. When this is the case the cure will hardly be complete unless the surgeon retrenches the redundant structures. I have been obliged to resort to this expedient only once in my operations. A portion of scrotum, nearly of the size of a large hand, was excised with the scalpel, and the wound closed by the continued suture, which I consider far preferable, under such circumstances, to the interrupted or twisted.

LOUISVILLE, KY., *July*, 1848.

ART. VII.—*Contributions to Pathology: being a report of fatal cases taken from the records of the U. S. Naval Hospital, New York.* By W. S. W. RUSCHENBERGER, M. D., Surgeon U. S. Navy; Fleet Surgeon for the U. S. Squadron on the East India Station.

ON the first of April, 1847, the U. S. Ship Vincennes, after a cruise in the East Indian and Chinese seas, arrived in the port of New York. The crew had suffered severely from tropical dysentery, and those men who were attending to duty were considerably enfeebled, either by disease or extra labour imposed on them in consequence of the number sick and therefore unable to work. Of a crew of about 180, thirty-five were admitted into hospital, suffering from chronic disease; of this number, twenty-two were affected with dysentery. Of the latter, nineteen were cured, one was discharged very much improved, and two died.

CASE I. *Dysentery complicated with Pneumonia.*—Daniel Green, gunner's mate, ætat. 55, received from the U. S. Ship Vincennes April 2, was admitted for treatment on board, January 7th, 1847; had been complaining two months previously: while on board, he was treated with mercurials, opiates and topical depletion.

Emaciated; sallow, dry, harsh, shriveled skin; tongue dry, smooth, striped longitudinally, florid; pulse regular, small, feeble, 76. Milk diet. *P. M.* ℞.—Ipecac. pulv. gr. ij; opii tinct. gtt. xxv; aq. font. ℥ij. M. ft. haust. h. s. s.

April 3*d.* Frequent small stools during the night; feels better this morning. ℞.—Cupri sulph. gr. ss; gentianæ ext. gr. iss. M. ft. pil. cap. q. q. 4ta horâ. *P. M.* Frequent stools during the day. Repeat "Ipecac. draught" of last evening.

4*th.* Thinks he is better; frequent small stools, with tenesmus during the night. Suspend sulph. cupri. ℞.—Creta ppt. ℥ss; krameriæ ext. ʒij; acaciæ pulv. ℥ss; aq. font. q. s. ft. ℥vj. M. cap. ℥ss q. q. 3tia horâ. *P. M.* No change; medicine to be exhibited every second hour. Repeat "Ipecac. draught" at bed time.

5*th.* Nausea; has vomited; stools less frequent; persist. *P. M.* Ipecac. draught h. s. s.

6*th.* Slowly improving; inf. lini *ad lib.* *P. M.* Persist. ℞.—Pulv. piper. angustifol. grs. v q. q. 2da horâ. ℞.—Pulv. ipecac. gr. ij; tinct. opii ♏xx; aq. camphoræ, aq. font., āā ℥j. M. ft. haust. h. s. s.

7*th.* Constant desire to stool; stools feculent, yellow, without blood. *P. M.* Thinks he is much worse; complains of tormina; asks to have his will made. Persist; repeat draught of last night.

8*th.* No change. Chicken broth in lieu of mush and milk. Suspend piper angustifol. *P. M.* Feels better; complains of cough. ℞.—Sol. sulph. morphiæ ʒj; h. s. s.

9*th.* Complains of hard dry cough, which keeps him awake and exhausts his strength. Stools much less frequent; evacuations fecal, of a light yellow colour. Suspend cretaceous mixture of the 4th. ℞.—Sol. sulph. morphiæ ʒvj; mucil. lini q. s. ft. ℥vj. M. cap. ℥ss q. q. 2da horâ. *P. M.* Three stools in the past twelve hours; cough less troublesome; feels much better.

10*th.* Feels very much better; very little cough. Persist. *P. M.* Three fecal evacuations in twelve hours. Ipecac. draught h. s. s.

11*th.* During last evening, was very irritable; delirious through the early part of the night; walked about the ward until between two and three o'clock A. M., when he laid down. Expired tranquilly about four o'clock A. M.

Autopsy nine hours after death. Thermometer 68° F.—Body very much emaciated; œdema of the feet and legs; abdomen inelastic and sunken.

Head not examined. *Thorax.* Lungs did not collapse; extensive but not very firm pleuritic adhesions on both sides; pleura adherent to pericardium. In the apex, and also in the upper portion of the middle of left lung, there were cavities, each containing about an ounce of dark, olive-coloured, offensive matter. The parietes of these cavities were covered by an exudation of lymph. Lung distended, and filled with frothy serum, and studded with small blackish tubercles. The right lung more crepitant than the left; the upper lobe studded throughout with tubercles, and distended with serum: texture of both lungs softer than usual.

Heart. Size normal; weight 9¼ ounces, and its substance preternaturally soft. The right auricle very much attenuated, very transparent, and seemed to be formed almost entirely of serous membrane. The pericardial sac contained about two ounces of serum of the colour of olive oil, which was found to be highly alkaline, and quickly coagulable by heat, and by the addition of nitric acid. Parietes of right ventricle $\frac{2}{10}$ths of an inch thick; of the left, $\frac{7}{10}$ths of an inch, and the septum ventriculorum $\frac{9}{10}$ths of an inch in thickness. The mitral valves were thickened and studded with cartilaginous deposits; and ossific deposits were found at the origin of the aortic valves. The internal diameter of the pulmonary artery was $\frac{8}{10}$ths of an inch; of the aorta, at the origin of the innominata, $\frac{19}{20}$ths of an inch, and, immediately beyond the origin of that vessel, $\frac{8}{10}$ths of an inch: the internal diameter of the innominata at its base was $\frac{7}{20}$ths of an inch.

Abdomen. Omentum free from fat; peritoneum thickened, and readily separable from its attachments. *Liver* was of normal size, but its substance soft and friable; the upper surface was marked by numerous, white, stellate spots, and, near the left extremity, covered with white, thickened granular membrane. The gall-bladder which adhered closely to the colon, contained four ounces of thin lemon-coloured bile. The *spleen* was small and hard. The *stomach* was normal in size and external appearance; the mucous coat firm. Near the pylorus the coats were generally thickened, and close to the pyloric orifice, which was considerably contracted, was a heart-shaped ulcer, about a quarter of an inch in diameter. The coats of the duodenum were thickened, and the internal diameter of the intestine considerably diminished, but the glands of Brunner were not discernible. The small intestines were not remarkable; but the mesenteric vessels were injected, turgid. The *colon* was contracted in its diameter; its parietes very much thickened, the mucous coat of a dark slate colour, and its whole surface thickly set with large ulcers. The mucous coat of the rectum was injected, but not ulcerated. The left kidney weighed 6¼, and the right 5¾ ounces avoirdupois. The left kidney was peculiar in shape, the anterior face being flattened, and the upper extremity of it truncate. The bladder was distended; its coats were thickened.

Remarks.—The above case is from notes by Assistant Surgeon Joseph Hopkinson.

As far as we are informed, this man had been suffering more than three months from disease of the intestines exclusively, that is, if we are to rely upon symptoms. But on the sixth day after his admission into the hospital, and four days before death, he complained of cough for the first time; and this symptom of abnormal condition of some portion of the respiratory apparatus, is reduced, if not subdued, in the course of forty-eight hours, which might lead the practitioner to conclude, there was no serious affection in the lungs; the whole of the symptoms pointed to the abdomen as the site of disease, and in its viscera alone we were to look for the causes of the symptoms noted. But instead of finding evidence of serious abdominal disease, resulting from more than one attack of dysentery within the tropics, we find cavities and tubercles in the lungs, which were in the second stage of pneumonia. The condition of the lungs, as revealed after death, seems to be incompatible with a pulse of only seventy-six beats in the minute. This observation was carefully made. It is not presumable that the pathological condition of the lungs was the result of abnormal action of a brief period, of a few days, commencing when cough was first noted. It is probable there were symptoms indicative of disease in the lungs, but no complaint being made by the patient which drew attention to them, and the symptoms of abdominal affection being so prominent in the case and prevalent in the ship, the former were not noticed, or noted.

Case II.—*Dysentery.*—*April* 2*d*, 1847, *P. M.* Joseph Smith, seaman, ætat. 35, received from the U. S. ship Vincennes, "affected with chronic dysentery." He was admitted for treatment on board that vessel, February 27th; had suffered two previous attacks of dysentery; had been convalescent two weeks, when, in consequence of an error in diet, he suffered a relapse two days before his arrival at New York. The treatment on board consisted of topical bleeding by leeches, opiates and mercurials.

Says he has been suffering during four months, but did not go on the sick-list till about four or five weeks ago. Skin dry and harsh; tongue furred in patches, tip and edges red and dry; pulse full, very soft, 120. The whole abdomen very tender, sensible to the slightest touch. Constantly on the close-stool, tenesmus; stools muco-sanguineous; no appetite. Has pain occasionally shooting through left side, but not constant. On the left side of the chest, throughout the lateral, superior and inferior mammary regions, there is dullness on percussion; over the left superior and inferior mammary, and left lateral regions, a fine crepitus is heard. He has very little cough, and no expectoration; says he has vomited several times. Fever diet, gum-water for drink. ℞.—Acid. nitric. gtt. xx; tinct. opii gtt. xl; aq. camphoræ q. s. ft. ℥iv. M. cap. ℥ss q. q. 2da horâ.

April 3*d*. Suspend mixture of aq. camph. ℞.—Fol. piper angustifol. (matico) ℥j; aq. font. q. s. displ. Oj. Cap. ℥ij q. q. 2da horâ. Arrow-root, pro re natâ. *P. M.* Stools less frequent; less tenesmus; tongue heavily coated in the centre with scarlet tip and edges, which are dry. Arrow-root and water were rejected this morning; ate a few spoonfuls of clam soup, which the stomach retained. Continue matico. ℞.—Pulv. ipecac. gr. j; tinct. opii gtt. xxv; aq. camphoræ ℥j. M. ft. haust. h. s. s.

4*th*. Slept well during the early part of the night; since three o'clock, A. M., stools frequent, discharges small; several paroxysms of gagging; vomited once. Continue inf. matico. Apply to abdomen cotton wool, and cover with oiled silk. ℞.—Pulv. piper angustifol. ʒss q. q. 4ta horâ. *P. M.* Four stools since morning visit; ate some clam-soup, which seems to suit his stomach. A suppository of opium (four grains) was administered at two o'clock P. M., and retained an hour.

5*th*. Thinks he was up every five minutes during the night; discharges very small, less bloody, and of a darker colour; constant pain in loins and over the whole abdomen. Suspend inf. matico. ℞.—Tinct. opii ʒj; mucil. amyli ℥ij. M. ft. enema—rep. p. r. n. *P. M.* Ipecac. draught h. s. s.

6*th*. Stools less frequent; discharges dark coloured and frothy; no tormina, very little tenesmus; tongue cleaner; pulse full, soft, 112; countenance brighter. *P. M.* Improves. ℞.—Pulv. ipecac. grs. ij; tinct. opii gtt. xl; aq. camphoræ, aq. font. āā ℥j; M. h. s. s.

7*th*. Frequently up during the night; discharges of a dark brown colour, offensive, liquid, with a dark coffee-grounds-like deposit. The aggregate average daily discharge from the bowels does not exceed a pint. Tongue has a skinned look, but is neither so dry nor red as it was. Persist. *P. M.* Ipecac. draught h. s. s.

8*th*. As on yesterday. ℞.—Plumb. acetat. gr. xij; ipecac. pulv., opii pulv., āā grs. vj; M. ft. pil. xij; Cap. j q. q. 2da horâ. Suspend pulv.

matico (of 4th). He thinks it increases the tormina and tenesmus. Resume inf. matico (of 3d). *P. M.* More comfortable; ipecac. draught h. s. s.

9*th*. Prostrated; eyes heavy, sleeps with them partly closed; frequent watery stools; occasional discharges of liquid red blood. Has eaten nothing except gum water for two days. Essence of beef p. r. n. ℞.—Tinct. opii gtt. xl; mucil. amyli ℥ij. M. ft. enema. *Noon.* Hiccough; inattentive; roused with difficulty. 3 *o'clock P. M.* Repeat enema. *P. M.* Six discharges since last note.

10*th*. Suspend inf. matico. ℞.—Plumb. acetat. grs. xij; opii pulv. grs. vj. M. ft. pil. vj; cap. j q. q. 3tia horâ. *P. M.* Had six evacuations in the last twelve hours, very thin, resembling the *lotura carneæ;* tongue bright cherry red, dry and smooth; tenesmus. ℞.—Pulv. opii gr. vj; axungiæ ℈ij. M. ft. suppositorum.

11*th*. Evacuating with coffee-grounds-like deposit every half hour. Hope's mixture q. q. horâ. ℞.—Tinct. opii gtt. xl; mucil. amyli ℥ij; M. ft. enema; rep. q. q. horâ. Flour-ball diet. *P. M.* Suspend pills of 10th. ℞.—Ol. ricini ℥j; tinct. opii gtt. xx; vitel. ovi j; sacch. alb. ʒj; aq. camph. q. s. ft. ℥iv. M. cap. ℥ij q. q. 6ta horâ.

12*th*. No change; persist. Cold custard. *P. M.* Pulse 124; skin comfortable. ℞.—Ol. valerian. gtt. iv; gum tragacanth. q. s. M. ft. pil. iv; cap. i q. q. h. Alum whey ℥ij q. q. 2da horâ. Emp. lyttæ 6 in. × 6 to abdomen.

13*th*. Blister removed before vesication was complete; took two of the valerian pills; tongue moist, cleaner; pulse 112; feels better. *P. M.* Feels better; had slight nausea this afternoon; stools more consistent; retains flour-ball diet. One valerian pill every hour until three are taken. ℞.—Sol. morphiæ sulph. ʒj h. s. s.

14*th*. Vomits yellow bile occasionally; passes stools in bed; they are fecal, consistent, bloody; hiccough. ℞.—Argent. nitrat. gr. ¼ in pil. q. q. 3tia horâ. Suspend valerian pills. ℞.—Ol. valerian. gtt. ij; sacch. alb. grs. x; aq. camph. ℥j. M. cap. ℥ij p. r. n. *P. M.* Vomiting continues; blister has vesicated; rennet whey in place of alum whey, lime-water and milk occasionally. Morphiæ acetat. gr. j, to denuded cuts.

15*th*. Sleepless night; tongue dry, shriveled; stools brown, liquid; vomiting and hiccough continue. Inf. salviæ for drink; continue pills of nit. argent. *P. M.* No change: ℞.—Tinct. valerian., sol. morphiæ sulph., āā ʒj; aq. camph. ℥j; sacch. alb. q. s. M. ft. haust. h. s. s.

16*th*. Slept pretty well last night. Sinking. Brandy and water; cretaceous mixture. Died at half past six o'clock P. M.

Autopsy seventeen hours after death. Thermometer 68° F.—Body rigid, emaciated. *Lungs* and *heart* healthy; pericardium contained about two drachms of serum. *Abdomen.* Omentum very much injected and adherent in the left iliac fossa, and to the colon throughout its whole course. *Liver* pale and softened; *gall bladder* nearly empty. *Spleen* adherent to left kidney. *Stomach*, normal in appearance and size; mucous coat firm; near pyloric end was a pediculated, dark-coloured tumour of cartilaginous consistence, measuring a quarter of an inch long by one-eighth of of an inch in diameter. Pyloric orifice and duodenum thickened; glands of Brunner well marked and healthy; small intestines distended to twice their normal diameter. *Colon* covered by the thickened omentum throughout its extent, seemed as if rolled up in it: on cutting through this envelope, the great intestine was found to be a mass of softened, dark, slate-coloured tissue and pus, at several points completely perforated by ulceration; the gut readily tore transversely almost by its own weight. Yellow fecal matter was found smeared over the inferior part of the cavity of the peritoneum: the sigmoid flexure was bound down in the iliac fossa by thickened omentum, as if an effort had been made to prevent extravasation at that point.

Remarks.—The above case is from notes by Assistant Surgeon Joseph Hopkinson. It might be regarded as illustrative of the termination of dysentery, after several attacks in tropical climates, where a first attack is not generally difficult to cure.

Case III.—*Pneumonia.*—Charles L. Gerou, landsman, æt. 36, native of the city of New York, received from the U. S. ship North Carolina, February 13th, 1847, "affected with pneumonia." Surgeon Barrabino (of the U. S. ship North Carolina) states that Gerou was admitted to treatment for pneumonia on the 26th January, and from the first, the case was unpromising. He was treated by general blood-letting, saline laxatives, nitrous powders, and counter-irritants to the chest. The patient sank rapidly, and was revived by the active employment of diffusible stimulants and general frictions. It was ascertained, after venesection had been practised, that the patient was habitually inebriate. On the 1st Feb., the expectoration was bloody and frothy. He was using as an expectorant, a mixture of senega, tolu and gum ammoniac; as diet, essence of beef and porter.

Feb. 2*d.* Delirium had subsided, and liq. ammon. acet. was substituted for the ammoniac mixture; a grain of calomel, with two of powdered squill, was taken every two hours. From this time the patient seemed to improve; there was very little wheezing, and the expectoration was copious, yellow, and thick.

13*th*, *P. M.* Very much fatigued by transportation from ship to the hospital. Tinct opii camph. ʒij. h. s. s.

Feb. 14*th.* Slept very little. Emaciated; very feeble; cough troublesome; expectoration very tenacious, tinged with blood; pulse soft, small, 100; respiration laborious; mucous râle heard at some distance from the patient. Chicken and chicken soup. ℞.—Potassi iodid. ʒj; aq. dest. ℥j; bals. tolu ʒj; syrup. prun. virg. q. s. ft. ℥iv. M. cap. ℥ss q. q. 4ta horâ. *P. M.* Pulse 112; respirations 40. Dry cups to chest. Inf. lini *ad lib.*

15*th.* Slept better; more comfortable.

18*th.* Dry cups were occasionally applied, and anodynes at night. Respiratory sound distinguished in lower part of right lung, which up to this date seemed to be solid. *P. M.* Accelerated pulse; respiration hurried. Dry cups to chest.

22*d.* Respiratory murmur and small crepitus under right nipple, where, until this date, respiratory sounds were totally inaudible.

26*th.* Has suffered at different times, in the past four days, from pain under right scapula, frequent and laborious respiration; pulse soft, feeble, 120 to 130. Fluid accumulated in the trachea, causing loud râle. Stimulating expectorants and anodynes were employed. To-day feels more comfortable; passed a good night. *P. M.* Respiration more hurried; pulse feeble; skin dry; no pain; whole of right chest dull on percussion; no respiratory sound. Dry cups to chest. Pulse 140. Wine whey.

28*th.* Slept considerably; skin comfortable; pulse 96; cough much diminished; some appetite.

March 2*d.* Seems to be improving. 3*d.* Not so well; pulse 96; respiration hurried. ℞.—Hydrarg. c. creta ʒj; pulv. scillæ ℈j; pulv. digitalis gr. x; ext. gentianæ q. s. M. ft. mas. et in pil. xx. divid. cap. j q. q. 4ta horâ. *P. M.* Enema to open bowels.

4*th.* Surface pallid; bathed in perspiration; countenance anxious; pupils dilated; respiration hurried; pulse very feeble, 100; whole of right chest dull; no respiratory sound. Ale and water freely; wine whey. *P. M.* More comfortable; pulse 80, soft, small, regular. During past week, decubitus on left side.

7*th.* Bronchial respiration and coarse mucous râle heard in right chest. Pulse 120.

8*th.* Seems to be sinking; drowsy; little expectoration; pulse 128. Port wine p. r. n. ℞.—Potassi iod. ℈j; aq. dest. ℥ss; syrup. prun. virg. q. s. ft. ℥iv. M. cap. ℥ss q. q. 4ta horâ. Asks for broiled ham.

10*th.* Inclined to sleep; slight mercurial fetor; pulse 128, stronger; scanty expectoration; no pain; feels better, decubitus on right side.

12*th.* Neither cough nor expectoration; thinks himself better.

13*th.* Slight expectoration; sputa very tenacious, yellow, spotted with blood.

15*th.* Feels much better; coarse mucous rhonchus on right side. *P. M.* Pulse 112; respiration 42, laborious.

17*th.* Expectoration more copious, and sputa less tenacious.

21*st.* Improvement daily noted since 17th. Decubitus on right side; pulse 104. Says he ruptured a blood-vessel about 13 years since, and was sick about three weeks: since that time has always slept on the right side. Percussion of whole of right chest dull.

24*th.* Restless; expression anxious; skin soft, temperature normal; pulse 126, anorexia. Suspend treatment. ℞.—Ammoniæ sesquicarb. gr. x; camphor pulv. gr. iv; aq. font. ℥ij. M. cap. ℥ss q. q. 3tia horâ. Weak milk punch; ℥ij of brandy to a pint of milk.

29*th.* Since 24th, no marked change. Surface sponged with tepid water several times, and essence of beef, and other articles of diet, prescribed to nourish. Slight passive hemorrhage from nostrils, for the last three days, never exceeding a drachm at once. Respiration 32; pulse 120. Thinks himself better.

April 1*st.* Has a bad sore; pulse 116; respiration 28; dress sore with ung. zinci carb. præcipitat.*

2*d.* Tongue dry and furred; slight epistaxis.

8*th.* Has taken nightly, spts. ether. sulph. comp. ʒj, since the first, in consequence of want of sleep. Pulse 114. Feels better; emp. saponis for bed-sore.

12*th.* Pulse 114, very feeble; expectorates mucus, mixed with red blood. *P. M.* ℞.—Ol. valerianæ, gtt. i. in pil. h. s. s.

13*th.* Slept well; more comfortable; copious muco-purulent, offensive expectoration. Mind wanders.

17*th.* No material change of condition; less delirious.

18*th.* Pulse 112, feeble; sputa mixed with red frothy blood; tongue dry; lips and teeth covered with sordes; subsultus; muttering delirium—sinking. 19*th.* Expired at four o'clock P. M.

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* Finding that the article sold as impure carb. zinci, contained no zinc, or any salt of that metal, I caused an ointment to be prepared with the precipitated carbonate of zinc, made in the house, preserving the proportions of the officinal ointment. I am under the impression, after very many trials, that this substitute will be found advantageous.

Autopsy eighteen hours after death. Thermometer 68°.—Body rigid; *head* not examined. *Thorax.* Right side more rounded than the left. *Heart* and attachments weighed eleven and one-quarter ounces: the coronary vessels were distended with blood; about an inch above the valve, there was a spiculum of bone half an inch long, lying transversely in the coat of the aorta. *Left lung* collapsed; normal. *Right lung* seemingly very much distended; an incision into its anterior surface was followed by a jet of pus, which filled the whole of the right thorax; the lung was obliterated, with the exception of an anterior facing of condensed tissue. The cavity contained, by measure, thirteen pints and five ounces of laudable pus, and was lined throughout by a thick, strong, unorganized membrane, excepting a space over the fourth, fifth, and sixth ribs, where it was seemingly ulcerated through, leaving the ribs for two inches in length, in their whole circumference, bared of periosteum. *Stomach* very much distended with gas. Small intestines normal. *Colon* gradually contracted from the mesial line of the body, to the rectum, (also contracted,) where the external diameter of the gut did not exceed half an inch. The mucous surface was healthy. *Right kidney* weighed nine and a-half ounces, and the left eight ounces: the cortical portion of the left kidney was the seat of an urinous abscess; and in its pelvic portion, and imbedded in the expanded mouth of an infundibulum, was found an irregular crystalline mass, weighing sixty-one grains. Being sawn through, the mass was found to be soft, and to consist of concentric layers. Chemical examination showed it was composed of uric acid, zanthic oxide, traces of phosphate of magnesia, phosphate of lime, oxalate of lime, and free oxalic acid.

The contents of the vesiculæ seminalis were examined with a microscope, thirty hours after death, and seminal animalcules perceived in abundance, but not in motion.

Remarks.—The above case is abbreviated from notes by Assistant Surgeon Joseph Hopkinson.

This patient had been under treatment nineteen days on board ship, and in all eighty-three days. The case was carefully watched, but no sign of affection of the kidney, or anormal condition of the intestine, was observed.

Case IV.—*Disease of Colon.*—Irving, private marine, ætat. 22, native of Louisiana, received June 5th, 1847, from U. S. ship Ohio (recently from Vera Cruz), "affected with chronic bronchitis." Had been under treatment on board about three weeks. *P. M.* Bowels loose; milk diet. ℞.—Pulv. ipecac. gr. ij; tinct. opii gtt. xxv; aq. font. ℥ij. M. h. s. s.

June 6th. A good deal emaciated; loss of appetite; very feeble; chest resonant throughout; no anormal sounds noted; expectoration frothy; frequent yellow, watery discharges from the bowels; no pain. Desires something "hard" to eat, as he cannot relish fluids. Allowed an egg for dinner. ℞.—Acid. nitric. gtt. iij; pulv. ipecac. grs. ij; pulv. opii gr. i; aq. camphoræ, aq. font., āā ℥j. M. ft. haust. h. s. s.

7th. Two greenish stools during the night; chicken for dinner. *P. M.* Cough troublesome. Repeat draught of yesterday. ℞.—Tinct. opii comp. ℥ij h. s. s.

9th. Improves; tongue pale, clean; coughs less; suspend draught of the 6th. ℞.—Creta ppt. ℥ss; acaciæ pulv. ʒij; ext. krameriæ ʒj; aq.

cinnam., q. s. ft. ℥vi. M. cap. ℥ss q. q. 3tia horâ. *P. M.* Three stools in the past twelve hours: does not relish food.

10*th.* Six stools in twenty-four hours; very much prostrated; entire loss of appetite; tongue pale; thirst; skin dry and harsh: pulse quick, feeble, small, 104. Gum water *ad lib.* ℞.—Plumb. acetat. grs. viij; opii grs. iv. M. ft. pil. iv cap. j q. q. 6ta h.

11*th.* Complains of exhaustion; anticipates speedy death. *P. M.* Medicines, &c., nauseate—frequent stools; skin cool, harsh; tongue pale, dry, coated; pulse very feeble. Suspend medicine. Sherry wine ℥ij p. r. n. ℞.—Carb. ammoniæ ʒj; aq. font. ℥vj; sacc. alb. q. s. M. cap. ℥ss q. q. 2da h.

Tranquilly expired at 11½ o'clock P. M.

Autopsy fourteen hours after death. Thermometer 76° F.—Body emaciated; *head* not examined. *Thorax.* Heart and pericardium normal; mitral valves slightly thickened. *Lungs* were grayish, and partially collapsed, and the pleura covered by a thick, adhesive, oily exudation; the lower lobe of right lung very completely congested; a few scattered tubercles were found in the lower lobe of left lung. *Abdomen.* Liver, spleen, pancreas, and kidneys normal; gall-bladder distended with healthy bile. The *stomach* exhibited a partial hour-glass contraction; its mucous membrane healthy. The arch of the colon was contracted and thickened as far as the left descending portion, which was of normal size for six inches of its length, and then was again contracted and thickened to its termination at the anus. The mucous membrane was of a dark purple colour; the valvulæ conniventes were almost obliterated. The caput coli was normal in size; but its mucous lining was almost black; just above the colic valve, there was an ulcer in the ilium, half an inch in diameter. The mucous coat of small intestines was perfectly smooth. About three feet from the caput coli, the upper portion of the ilium invaginated two and a-half inches of the lower; a similar invagination, to the extent of four inches, was observed in the jejunum: both probably took place *in articulus mortis*, or *post-mortem*, as no adhesions or marks of inflammatory action were observed.

Remarks.—The above case is from notes by Assistant Surgeon Joseph Hopkinson.

The patient was supposed to be in the last stage of tubercular phthisis on board ship; his general aspect, cough, emaciation, warranted the belief, and seemed to place the abdominal viscera beyond suspicion. The thoracic affection was probably secondary to chronic irritation or inflammation of the colon. The patient was a young man who "had seen better days," and got "out at the elbows" by constantly "putting the best foot foremost;" he had led an irregular life of intemperance at the tables of *bons vivans*, and subsequently with more gross companions, until he enlisted in the marine corps, where he necessarily led a more regular life. He had been about one year in the service.

Case V.—*Disease of Heart and Colon.*—John Maul, seaman, ætat. 47, native of Delaware, received from the U. S. ship Ohio, June 5th, 1847, "affected with dropsy." Has a bad cough, congestion of the lungs, and œdema of legs; has been treated by hydragogues and bandages.

P. M. Ascites; legs and thighs œdematous; bowels constipated; pulse 104. Low diet; drink inf. juniperi baccæ. ℞.—Hydrarg. c. creta ʒj; scillæ pulv. ℈j; digitalis pulvis gr. x. M. ft. mas. et in pil. xx dividend. Cap. j. q. q. 4ta horâ. *Half-past ten o'clock P. M.* Cannot lie down; when erect, fancies he hears a dropping of water in his chest; cannot sleep. ℞.—Pulv. jalap. comp. ʒiss; ol. valerian. gtt. iij; aq. font. ℥iij. M. s. a. s. s.

June 6th. Slept very little; sallow; eyes dull, heavy; pulse 92; tongue lightly coated, edges clean, friction and bellows-sound of heart. Bowels slightly moved. Has voided, in sixteen hours, 3½ ounces of deep-coloured, transparent urine, which has left a whitish deposit; sp. gr. 1·038, reddens litmus, unaltered by heat; rendered darker in colour, and opaque by addition of nitric acid; after being acidulated with acetic acid, it becomes turbid on adding a solution of deuto-chlor. hydrargyri. Urine not albuminous.

There is a strong double pulsation behind the right sterno-cleido-mastoid muscle, just above the clavicle. ℞.—Pulv. jalap. comp. ʒi. *P. M.* Complains of cough; bowels freely moved. ℞.—Potassæ bitartrat. ℥ss; aq. font. Oij; sacch. alb. q. s. M. *ad lib. sum.* ℞.—Tinct. digitalis gtt. xxx; spt. æther. nitros. ʒj; tinct. opii camph. ʒij; aq. font. ℥ij. M. ft. haust. h. s. s.

7*th.* Voided three ounces of high-coloured urine; slept badly. ℞.—Potassæ bicarb., sodæ bicarb., āā gr. x; spts. ammon. aromat. gtt. xxx. M. ft. haust. s. s. *P. M.* Repeat draught; chicken soup.

8*th.* Slept well, although troubled by cough; urine scanty. *P. M.* Pulv. Seidlitz q. q. h. ad deject. alv. ℞.—Tinct. digitalis gtt. xl; tinct. valerianæ ʒij; aq. font. ℥ij. M. ft. haust. h. s. s.

9*th.* Last night had severe pain in lower part of abdomen; relieved by a purging enema. *P. M.* Feels more comfortable; repeat enema.

10*th.* Feels better; bowels not moved this morning. ℞.—Magnus sulph. ℥j; magnus. carb. ʒj; aq. font. ℥viij. M. cap. ℥iv q. q. 6ta horâ.

11*th.* More comfortable; states that distension of abdomen was noticed for the first time about six weeks ago: pulse 88, mush and milk. *P. M.* Dyspnœa; very much oppressed; flatulent. ℞.—Pulv. opii et ipecac. gr. x h. s. s. Ol. terebinth. gtt. x, on a lump of sugar, p. r. n.

12*th.* No change: persist. *P. M.* Paroxysms of coughing; oppression, pulse soft, regular. ℞.—Ol. ricini ℥iss; ol. terebinth. ℥ss; vitel. ovi j; sacch. alb., acaciæ pulv., āā ʒij; aq. menth. q. s. ft. ℥vj. M. cap. ℥ss q. q. 2da horâ. 8 *o'clock P. M.* Cough very distressing. ℞.—Aq. camphoræ ℥ss p. r. n.

13*th.* Feels much better; seven or eight very copious scybalous evacuations from bowels; abdomen less distended; pulse 88, soft, regular; tongue clean; slept well during the last of the night and this morning; mouth sore. Suspend mixture. *P. M.* ℞.—Ol. valerianæ, gtt. iv in pil. h. s. s.

14*th.* Abdomen more distended, but not to so great a degree as it has been. ℞.—Inf. salviæ for drink. *P. M.* Pain and oppression increased. *At seven o'clock P. M.*, paracentesis abdominis; drew off eight pints of cider-coloured alkaline serum, sp. gr. 1·018. Relieved. 8 *P. M.* Pain in right hypochondriac region, which was relieved by change of position. 8½ *P. M.* ℞.—Vini (sherry) ℥ij; tinct. hyoscyami ʒij; spts. æther. nitros. ʒj; aq. font. ℥ij. M. ft. haust. s. s.

15*th.* Sore mouth; spat a little blood from mouth and fauces; voided a small quantity of high-coloured urine; oozing of serum from wound in abdomen. ℞.—Piper. angustifol. ʒij; aq. font. q. s. disp. Oj. Wash mouth p. r. n. Suspend inf. salviæ. *P. M.* Bowels free; feels weak; supported in a bed chair; dyspnœa slight. Repeat draught of last night. 8 *P. M.* ℞.—Nitrat. potassæ ʒss; lupulinæ ʒj. M. div. in chart. vj. M. cap. j q. q. 6ta horâ.

16*th.* Constipated; no headache; pain in right ear; harsh, loud, painful, dry cough; mouth oozes blood occasionally; respirations 40; pulse 120; eyes dull, heavy; no pain in abdomen. Dry cups to chest. Inf. cort. ulmi for drink. Suspend inf. juniperi.

17*th.* Allowed to eat a salad. Add acid. sulph. aromat. ʒj to pint of inf. cort. ulmi. 5½ *P. M.* Ice water. 11 *o'clock P. M.* Friction sound of heart heard standing at the bedside. Emp. lyttæ 4 × 6 in.

18*th.* *One o'clock A. M.* Feels comfortable; sitting up; countenance anxious; pulse 60. Died at four o'clock A. M.

Autopsy nine hours after death. Thermometer 72° F.—Body relaxed; subcutaneous cellular tissue slightly injected with serum; capillaries pour out thin watery blood at every incision. Free of fat; abdomen tumid; lower extremities œdematous.

Head not examined. The tumour on the right side, beneath the clavicular insertion of sterno-cleido-mastoid muscle, which had a double pulsation during life, proved to be a varicose enlargement of the jugular vein, resting in the bifurcation between the right carotid and right subclavian arteries, so that the varix received an impulse at the same instant from the two arteries, but in opposite directions. Several enlarged lymphatic glands in the vicinity probably aided to increase the motion.

On raising the *sternum*, (some of the cartilages required to be sawed through,) the internal mammary artery was observed to be much enlarged. The lungs did not collapse. *Right lung* adherent by old and strong bands to costal pleura; congested, but crepitant. *Left pleura* thickened. Reddish-coloured lymph, a line in thickness, covered the root of the great vessels. The anterior surface of pericardium was opaque and thickened, and marked on the internal surface, near the vessels, by bright red spots, a quarter of an inch in diameter. The pericardium contained about three ounces of dark, slightly turbid serum; a clear, straw-coloured serum filled about a third of the cavity of each pleura. The *heart* very much enlarged; its tissue pale and soft; parietes of normal thickness; its weight, after removing pericardium and washing, was 19½ ounces avoirdupois. All the valves were competent to close their respective openings, which were preternaturally large; all the valves were thickened, but not rigid. Interstitial deposits rendered the internal face of the aorta rough; internal surface of descending aorta was of a deep rose colour. *Abdomen.* Liver somewhat enlarged; tissue rather dense; incision presented a yellow mottled appearance. Gall bladder distended with dark-coloured bile. Stomach, spleen and pancreas normal. Kidneys large; tissue normal; left kidney weighed 7½ ounces avoirdupois; omentum free of fat, corrugated, and seemed as if it were tucked under the colon. Peritoneum injected; patches of lymph were observed at several points on its surface. Caput coli loaded with grayish pultaceous feces; tissue dark purple, and its mucous lining almost black: ilium, several inches above the valve, darkly injected. Colon contracted gradually, and in the sigmoid flexure its coats were thickened, and its mucous lining was studded with chronic ulcers. Small intestines injected.

Remarks.—The above case is from notes by Assistant Surgeon Hopkinson. The case presents an instance of disease in the serous and mucous tissues advancing at the same time, either of which might satisfactorily account for the death of the patient, who was a man of strong, nervous, determined character, and capable of much endurance. The hydrothorax and heart-affection seemed to mask entirely the disease of the abdomen, and to withdraw attention from its symptoms.

U. S. SHIP PLYMOUTH, *Rio de Janeiro, May* 10th, 1848.

ART. VIII.—*Case of Hydrophobia, treated by Chloroform.* By H. HARTSHORNE, M. D.

THOMAS ROGERS, aged between twelve and thirteen years, was bitten by a strange dog on the 27th of 6th month, while attempting to prevent him from worrying some geese. The same dog, within a few hours, bit a young man named M'C——, without the slightest provocation. After running hither and thither, quarreling incessantly with other dogs about town, he was pursued by a crowd and killed in the street. M'C—— had the wounded part immediately excised. On the 29th I saw T. Rogers' wound, which was upon the wrist of the left arm, consisting of one deep tooth puncture, which had bled largely, and a scratch, which had scarcely bled at all. I urged upon his father the propriety of excision, even at that time, the second day after the injury; but he obstinately refused consent. He then proposed applying a blister, which I encouraged, and left the case.

About three weeks after, I called to inquire about him. The wounds had healed perfectly; the boy was in excellent health and spirits.

On the 17th of 8th month, I was sent for, and Dr. Spackman was also called. We were told that he had been sick several days; had been drooping on Saturday; on Sunday had pains in his back, then in his sides, then his arms and legs, and his head—flying from part to part; had fever on Sunday night. Then, or on Monday, he asked for a drink; but when it was brought, refused it. His mother threatened a whipping, and he swallowed some, though with difficulty, having "a catch in his throat." This difficulty was now observed repeatedly, and his mother, "thinking it was a caper," scolded him for it. He burst out crying, and said, "Mother, I can't help it." He had burning fever on Monday. The next day, in fanning away the flies, they noticed that he gasped or sobbed spasmodically when the air was thus moved over his face. He complained of pain in the left arm, above the elbow, and his mother found a "kernel" in the axilla. Now the dog-bite was remembered, and a quack, agent for one "Dr. Stoy," was sent for. He brought his "certain cure" decoction, and it was administered. On Wednesday night the boy had raging delirium; he was never entirely rational, I gathered, since Tuesday, if not from a still earlier time. I should have mentioned that on Sunday he took six grains of calomel, followed by castor oil, which operated well.

We found him delirious, though not violent; with a feverish pulse and hot skin, though covered with sweat; decidedly salivated, with some swelling of the soft parts about the jaw, and a tongue covered with yellowish brown fur. His state was one of stupidity, with open and watery, though heavy eyes, somewhat like the expression of the excited stage of intoxication. The most striking type, however, of his physiognomy, was that of a kitten which I had seen poisoned with a decoction of kalmia.

Unwilling yet to believe it hydrophobia, I supposed the existence of remittent fever, with salivation by medicine. I offered him cold water in a teaspoon, and he swallowed it without noticeable difficulty, whilst lying on his back. Dr. Spackman had seen hydrophobia before. He fanned the boy with his hat, and the sobbing spasm was produced. This excited his suspicions, from its similarity to the symptom he had observed in two other cases.

As he was costive for some days, an enema and a dose of cream of tartar and jalap were directed in the afternoon. His father now sat him up in bed, and offered him a bowl of water. He began to gasp at once, and after two or three forced swallows, gave it up, and sank back convulsively on the pillow. He can still drink with less difficulty from a spoon, and on his back. We see, therefore, no urgent *symptoms* but those of fever. Spiritus mindereri was prescribed, the hair cut short, and the room aired, avoiding an immediate draught on him, which would bring on the spasmodic breathing at once.

In the evening, rather more actively delirious. At midnight he complained to me of pain in his left arm, from the elbow to the arm-pit, "like cramp." He spoke of this two or three times afterwards, in the course of his illness, but it did not seem to be permanently predominant. The pulse increases in rapidity, and loses in force. The next morning there was no important change. The bowels not being acted on, a dose of salts was given. I also had a cataplasm of tobacco put around his throat, and left there all day.

The principal peculiarity, considering it as hydrophobia, was, that the symptoms were not mortally pressing, after an illness of four or five days. But it happens that nearly all the detailed cases have been in adults. Might not age modify the duration of the disease, as youth appears to have more vital resistance than mature age; for instance, under surgical injuries?

A dose of castor oil was required before defecation was produced. The tobacco did not make him sick. In the afternoon he was more talkative. The spasms, as before, on drinking or being fanned. A piece of lint, wet with strongest tinct. rad. aconit. and chloroform, was put over the throat, covered with oiled silk. Mr. Nunneley has made a plausible suggestion of the locally anæsthetic effects of this latter agent. (See *Med. News*, Aug. 1847.) I also began the internal use of chloroform in mucilage, my impression, from other trials, being that it simply reduces the vividness and force of all sensation. Half a dozen leeches were ordered behind each ear, to relieve the turgescence indicated by the dark flush of the face, throbbing, full temporals, and delirium.

At eight in the evening I found he had been worse from the time of the leeching, which had been only in part effected, on account of his struggles. He now fights, curses, and threatens us constantly; is *raging mad.* Once he declared he would bite me; but mostly throwing stones, using his nails—which he did once on one of his attendants—and setting his dog on us, were his fancied modes of combat. And it is a popular error to suppose that biting is a peculiar propensity in the disease: angry, furious delirium is present, but it shows itself in the use of means and weapons customary and natural to the individual. His father persuaded him several times to try to drink. We succeeded in getting swallowed, with great difficulty, a few tablespoonfuls of chloroform mixture, and then the spasms increased to such a painful extent that it was impossible to get him to drink at all. Not only the muscles of respiration, including the diaphragm, but all the muscles of the neck were spasmodically contracted, throwing the head back for the moment as in tetanus; but, unlike tetanus, in the rigidity instantly disappearing when at rest. From the beginning to the end of the case there has been nothing which the shallowest observer could mistake for tetanus. He could at any time open his mouth wide and put out the tongue, and move his neck when not attempting to drink, or any limb or other part of the body, as readily as in health.

I now tried the inhalation of ether. The coldness caused by its evaporation near his lip, started the spasm every time it was freshly applied; and this finally caused him to resist it so obstreperously, that I was forced to give it up. He had, however, been considerably tranquilized by it. Dr. R. P. Harris was present this evening. The aconite and chloroform were renewed to his throat, and I left him, expecting to find him worse next time.

I went at eleven o'clock with my brother, Dr. E. Hartshorne, prepared to attempt the introduction of a stomach tube, as recommended from the experience of my father, to preserve a means of supplying liquid and nourishment. We found him, however, *asleep*, and he had been so almost since the last visit; but he could be easily roused. Gruel was offered him in a spoon, which at once excited the spasms and furious resistance. Fanning also produced the usual effect. But he had the appearance of being to some extent narcotized. An enema of tinct. opii ℥ss was ordered in case of a return of excitement.

He remained tranquil all night. At seven next morning he appeared decidedly better; pulse softer and less rapid, skin warm, now also dry, which has not been the case before. He is tractable, though wandering: and can drink gruel. I am reminded of the "deceptive remissions," occurring in cases described by authors.

He became worse again at ten o'clock; not so much with violence, as suffering. "It was *horrors* this time," his nurses said. I asked him if he was sleepy; "no, but I'm frightened; those bullocks are chasing me!" He cried bitterly, and had almost constantly the most distressed contortion of the features possible. The pulse is more frequent than last night. The pupil, now and at all stages of the disease, even to the last day, was *natural* in its contraction and dilatation. He can swallow small quantities at a time, to-day; gruel, water and chloroform mixture were given from time to time. Two injections of ℥ss laudanum each were used within two hours. No effect was produced by them, and at four o'clock he was still extremely restless, suffering terrors of apprehension. He cannot now be made to swallow. I began then the inhalation of chloroform, from a handkerchief. He was almost instantly quieted. In a few minutes the lips became slightly blue, and respiration lessened in force; it was then withdrawn, and colour returned. By repeating this whenever the struggling was renewed, I kept him under its influence, most of the time sleeping quietly, for about two hours. The same treatment was continued by an attendant, and another injection of ℥i laudanum was used on the return of uneasiness. He swallows no better, however, and sighs spasmodically every few minutes. But it is a great end gained to be able thus to control his horrors and violence; if any agency promised hope of cure, it must be one which produces such mitigation and relief, not afforded, I believe, by any other remedial means. The tinct. rad. aconit. was again renewed to his throat.

In the evening he appeared still to be under narcotic influence; but the sighing is perhaps more frequent. Pulse 160. Able to swallow very little indeed. This state continued till near three the next morning, when he became wakeful, but tranquil and more rational than yesterday. Now, however, commenced a rattling in his throat, from the accumulation of thick ropy mucus in the fauces and trachea, which threatens to check respiration. Finding the pulse still capable, and that deglutition was improved, for the time, I obtained the presence of Dr. J. W. Wallace, Dr. Spackman, and Dr. E. Hartshorne, to consider the possibility of tracheotomy being called for. In the meantime, however, carbonate of ammonia and brandy-punch were given, and partial expectoration took place; Dr. Wallace was able to remove more of the obstruction by a sponge and forceps, and the operation was given up. The stimulation seemed for a while to improve his condition decidedly. In a few hours the throat was quite clear, after vomiting. But in the afternoon, with a still more rapid and feeble circulation, his violence and misery returned. He vomited repeatedly, and had two or three very offensive passages from the bowels. The chloroform was now longer in producing any effect; and then it did not so thoroughly control his restlessness as before. It was assisted by laudanum injections of ʒi at a time.

8½ *P. M.* He is in a profound sleep, pulse 175 in the minute, and feeble. He has been so since five o'clock, when he had, during my absence, an injection of ʒss of laudanum, being then restless. He also breathed a little chloroform about that time. Fanning him now hardly excites any spasm; but occasionally he opens his eyes with a distressed expression; several times also stretching out the bitten arm, and holding it for some moments at full length.

At midnight my brother found the extreme sensitiveness to cold decided as before; a drop of water on the face causing a violent sob. This is satisfactory evidence that the narcotism has not been *excessive;* for who ever saw a person under the influence of opium evince *any* sensibility at all?

Dr. Spackman had observed this evening a new phenomenon, which was now very striking; it was *emphysema* of the cellular tissue around the throat.* It was swelled considerably, and crackled very distinctly under the finger. We had laid him on his side on the occurrence of vomiting, to prevent the ejection from passing into the larynx; and on account of the swelling of the throat, the head was now thrown backwards. But the muscles of the neck were repeatedly and carefully examined; and not the slightest rigidity was found.

He sank away quietly, and died without further spasm, at about half-past two on the morning of the 21st, having lived at least seven days since the commencement of hydrophobic symptoms. Like most or all of the cases described by Watson and others, it was not asphyxia, but asthenia which destroyed him; asthenia in this case was the direct effect of the peculiar poison; as the exhausting fatigue of his spasms and violence was prevented to a great extent by chloroform, and he was able to swallow some liquid not many hours before death. I saw the corpse a few minutes after he expired, and found it nearly or quite as warm as in health; so that I requested delay in moving it. No post-mortem examination could be obtained.

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* In the autopsy of a previous case, Dr. Spackman had observed the existence of globules of air in the veins of the neck, and in those of the brain. Might this not suggest the hypothesis that the materies morbi is a gas-generating poison?

The case had been seen by Drs. Spackman, W. Harris, R. P. Harris, E. Peace, E. Hartshorne, R. S. Woddrop, C. Wister, J. W. Wallace, and W. D. Stroud; most of them, however, while he was under the influence of chloroform.

To resume. The boy was thirteen years old. Was taken sick about six weeks after being bitten by a dog proved to behave as if rabid. Had high fever, which had no remission, and yet no characteristics of typhus or typhoid fever; he was not deaf; had no tympanitis; no petechiæ; but had throughout, excessive sensibility to impressions, particularly those of cold, and about the face; had a difficulty, at times incapability, of swallowing, caused by a spasm which made a violent respiration simultaneous with the attempt to swallow, and thus impeded the latter and endangered the passage of liquid into the windpipe; which symptom was constant, and belongs to no ordinary type of disease; had injections of laudanum, ℥ss or ℥j, repeated again and again with no effect: and breathed chloroform for hours, with only short intermissions, with no more effect than to tranquilize him, and produce natural sleep, from which he was, once at least, roused by a return of wild delirium: and yet had no sign whatever of tetanus: no possibility of mania-a-potû: and very little, and only occasional complaint of pain: which pain, when it occurred, except in the first stage, was in the arm which had been bitten by the dog; had also salivation, constant watering of the eyes, and finally vomiting: and whose delirium was, until quelled, of a malicious and furious character, or one of dread, horror, and distress: ending fatally at the end of the seventh day.

What name should be given to such a case? "Hydrophobia" is not appropriate, because in this and other cases they *desire* drink, but are incapable of benefiting by it: would not *dyspotia*, or rabies dyspotia (from δυς, and ποτος, drink), be more correct?

It is a highly important fact, that the inhalation of chloroform, persevered in at intervals, did master the violent delirium and horror of the case. Dr. Smiley of Philadelphia, and Dr. Stout of Easton, have already noticed the same effect; although their cases also were fatal. This removes, at least, one element of evil from the disease. And if any remedial agency can ever give hope of *cure*, it must be, when aided by other means, one which has such control over the symptoms, attained hitherto by no other medicine.

We were deterred from depletion by the lancet by the supposed analogy to tetanus, in which stimulation is mostly requisite and useful. But free bleeding is said to have effected one or two recoveries; and has *à priori* plausibility in its favour, as the disease is inflammatory both in symptoms and post-mortem appearances. We were unwilling to use counter-irritation to the spine, from the idea that death was certain, and that those means only were, therefore, justifiable, which lessened or did not increase suffering.

And the *early* resort to chloroform was prevented by respect for the doubts of those who at first were inclined to regard it as a case of fever.

With a distinct diagnosis, should another case present, in recollection of the mitigation already obtained—would not the practitioner be justified in commencing with venesection: using chloroform, with discretion, from an early period: and applying some powerful revulsive, aided by a narcotic, to the nucha? Dr. R. S. Woddrop proposed vesication, followed by the free application of a salt of morphia. Perhaps *acupuncturation with aconitina* might prove more powerful. This treatment has been found successful in obstinate neuralgia. I used a sort of cataplasm of tinct. rad. aconit. to the throat in the above case. An excessive sensitiveness to incident impressions, and consequently excessive motory action of particular muscles, *including the diaphragm* obviously in this case, as well as those of the throat, seems to be present. Remedies which lessen sensation are the ones, then, which may mitigate the disorder at least. In France, the vapour bath is asserted to have wrought a cure; its efficacy should be tried, and might be aided, as was contemplated in our case, by medication with such articles as tobacco, chloroform, aconite, to produce a powerfully antispasmodic fumigation of the whole surface of the body. Prof. S. Jackson advises bathing in warm oil. When swallowing is impossible, the stomach tube might be inserted through the nostril, as done by Dr. Joseph Hartshorne a number of years since, in the hospital; and life also supported by nutritious enemata.

But careful reflection will only deeply impress the conclusion, that with all the means that man can devise, the malady is one which affords less hope of cure, decidedly, than phthisis; and that prevention by immediate excision (or cauterization?) of the bitten part, is the only safeguard against its result.

ART. IX.—*A case of Fibrous Tumour of the Lower Jaw, in which the left half of that bone was successfully removed at the Temporo-maxillary Articulation.* By S. D. GROSS, M. D., Professor of Surgery in the Medical Department of the University of Louisville.

KITTY, a negress, nine years of age, was brought to me for professional advice, on the 2d of May, 1846, by her master, Mr. Lawton, of Rumsey, Kentucky. Eighteen months previously she punctured the left side of her face with a piece of wood, which she happened to have in her mouth as she fell, head-foremost, from a high fence. Some inflammation ensued, but this rapidly disappeared, and nothing further was thought of the accident until four months after, when a slight enlargement was noticed at the original site of the injury. This gradually extended until it involved the whole of the left side of the jaw, from the ear to within a few lines of the symphysis of the chin, and from the middle of the cheek to the upper part of the neck. The tumour, which had increased very much within the last four weeks, was very prominent, externally, and reached, at the time of my examination, when the head was held in its ordinary position, nearly down to the clavicle. Articulation and mastication were both very much impeded, and the jaw was so completely anchylosed that it was almost impossible to move it in any direction; indeed, the interval between the dental arches was so small as not to permit the protrusion of the tip of the tongue. The swelling was very hard externally, and towards the base of the jaw were two small points, which seemed to have been the seats of little abscesses, probably of a scrofulous character. In other respects, the skin was perfectly sound. Internally, the bone appeared to be healthy, and did not encroach upon the tongue. The tumour was at first free from suffering, but during the last month the girl complained of a good deal of pain, especially at night. The general health was unimpaired.

Such being the condition of the parts, it was obvious that nothing short of excision of a portion of the jaw could afford any relief. The operation was performed on the 5th of May, in the presence of Dr. Colescott and Dr. Thomas L. Caldwell, and a number of medical students. As a preliminary step, the body and limbs of the little patient were surrounded by a strong apron, carefully pinned behind, as in the operation for harelip. She was then seated upon a chair, with the head inclined a little backwards, and supported by an assistant. An incision was made through the middle of the lower lip to the base of the chin, and, at a right angle with this, another along the body of the diseased bone. The flap thus marked out was then dissected up, and the jaw sawed through a little obliquely, immediately by the side of the symphysis, so as to preserve the two incisors. An incision was then carried from the tragus of the ear to the termination of the horizontal one, already mentioned; the integuments were rapidly dissected up; the masseter, temporal, mylohyoid, and pterygoid muscles were successively separated from their attachments; and the bone was finally raised from its socket. Not a little difficulty was experienced in this stage of the operation, from the cartilaginous adhesions between the coronoid and zygomatic processes, the former of which was very much thickened, and forced the latter out in such a manner as to render the cheek quite prominent, in that situation. The temporo-maxillary joint was completely anchylosed, and the attachments formed by the condyle rendered the disarticulation almost impracticable.

A part of the submaxillary gland appeared to be changed in structure, and was accordingly removed. Several lymphatic ganglions of the neck were, for the same reason, excised. The operation was exceedingly painful; and, as I was about to disarticulate the bone, the patient swooned away. Scarcely six ounces of blood were lost, and, what is remarkable, not a single vessel required to be tied. The bleeding from the facial artery, which was divided in the early stage of the operation, was readily controlled by the finger of an assistant.

The tongue, stylo-hyoid muscle, and submaxillary gland were fully exposed by the dissection; the parotid lay at the posterior part of the wound; and the external carotid was seen pulsating just below the ear.

The operation being over, the wound was kept covered for nearly three hours with a thick linen compress, frequently wet with cold water. At the expiration of this period, the edges were brought together by six twisted sutures, and a few adhesive straps, the whole being supported by a thick compress and a roller.

Very little pain was experienced after the operation, and the patient slept comfortably during the succeeding night. On the following day there was slight fever, with some swelling of the left side of the face, but this yielded speedily to a dose of Epsom salts and cooling drinks. The needles were removed at the end of the third day, and the parts were found to be beautifully united, both externally and internally. Subsequently the temple and cheek were invaded by erysipelas, brought on, apparently, by premature exposure and improper eating. A dose of calomel and the application of the tincture of iodine, promptly put a stop to this disease; and from this time on, the convalescence was rapid and uninterrupted.

The tumour, on dissection, was found to be of a fibrous character, dense, inelastic, and of a dull whitish colour. The periosteum, from which it probably arose, was considerably thickened, and could be peeled off, without difficulty, from the subjoined bone. The bone itself was considerably enlarged, and a section of it exhibited a uniform, compact surface, with here and there a small elongated cell. The coronoid and condyloid processes were remarkably thick, and the latter had lost its smooth and polished appearance. The body of the bone contained a perfectly healthy molar tooth.

Upwards of two years have now elapsed since the above operation, and there is, thus far, no evidence whatever of any tendency to a relapse of the disease for which it was undertaken. Kitty's master has recently informed me that she is entirely well, that there is hardly any deformity of the face, and that she chews, articulates, and swallows with as much facility as any one.

LOUISVILLE, *Aug.* 21, 1848.

ART. X.—*Case in which unusual Phenomena followed the Administration of "Sulphate of Morphia."* By L. B. ANDERSON, M.D., of Elton, Hanover city, Va.

MISS V., a young and highly accomplished lady, from excessive fatigue, and loss of sleep in attending a sick friend, became so "nervous," to use her expression, that she was unable to procure the slightest repose. She laboured under slight cerebral disturbance, and a very irritable stomach, at the time I was called to see her; both of which, however, were measurably relieved by the operation of a mild cathartic. But she was unable, notwithstanding, to obtain refreshing sleep.

A fourth of a grain of the sulphate of morphia was now directed to be administered, and a like quantity to be taken every two hours, unless it increased the pain in the head, (which was the only unpleasant sensation she had ever experienced from its use,) until she became entirely composed, or fell into a sound and refreshing sleep. She experienced no unpleasant sensation from its use until shortly after the administration of the third portion, when she complained of a "*tingling*" or "*pricking*" sensation in the extremities. Her hands and feet became cold; her fingers were involuntarily contracted and extended; she experienced some uneasiness about the elbows and knees, and also, at times, a slight difficulty in breathing. The time for the administration of the fourth portion having arrived, she had it given, hoping that it might allay or mitigate those unpleasant sensations. A short time, however, only elapsed after its administration, before all the phenomena above mentioned became greatly aggravated. The muscles of the hands and feet became rigidly contracted; the legs were drawn upon the thighs, and they upon the abdomen: the arms were alternately flexed, extended, and then contracted across the thorax: the muscles of the tongue, fauces, and glottis, became so much affected, that articulation and deglutition were almost impossible, and respiration was greatly obstructed. In fact the spasmodic action of all the voluntary muscles was so great, as to simulate a *genuine case* of traumatic tetanus.

Alcohol, ammonia, coffee, cold and hot ablutions, and constant frictions, were resorted to with no effect. The spasmodic action commenced at 2 P. M. and continued until 5½ P. M.; at which time I had anticipated the effect of the morphia would begin to subside; but I was disappointed. Hoffman's anodyne (which I had not been able to obtain at an earlier hour), was now administered, ʒiij in quantity; a portion of which being ejected, a like quantity was again administered. In a short time the spasms began to abate, and in the course of half-an-hour, had nearly entirely subsided. I cannot say that the anodyne was the cause of the cessation of the spasms, or whether it was occasioned by the agent which produced them, being more generally diffused, or being carried off in the secretions. But only a few moments elapsed after it was taken, before the lady expressed herself greatly relieved.

There was no peculiarity in the constitution of Miss V., nor had she ever before experienced any inconvenience from the use of any preparation of opium. It is true, she had in early life been subject to occasional attacks of epilepsy; an attack of which, however, she had not had for a considerable time prior to the use of morphia. She has taken, since the above mentioned circumstance, several of the liquid preparations of opium, from which no unpleasant effect was experienced.

ART. XI.—*Case of Strangulation of a Testicle in the Inguinal Canal.*

By SAMUEL MOSELEY, M. D., late Fleet Surgeon of the Pacific Squadron. (Communicated by Thomas Harris, M. D., Chief Bureau Med. & Surg. U. S. N.)

SAMUEL THOMPSON, rated landsman (colored), æt. 18, presented himself on the morning of June 29 1846, complaining of severe pains in the abdomen. At this time there was no abnormal appearance about the part, and, supposing the case to be one of colic, an anodyne was administered, without, however, affording relief. An hour after, being called to the patient, we found him complaining of great pain in the lower part of the abdomen; and, on examination, discovered a tumour in the right inguinal region, extending along the abdominal canal to the scrotum, and about five inches in its longest diameter. The swelling was tense and very sensitive;—in fact, to such a degree that he resisted all our efforts to reduce it by taxis. Our first impression was, that the case was one of inguinal hernia, though the tumour was hard, and did not communicate to the finger the sensation of containing intestine or omentum; and the parts were so much enlarged, that we did not at first notice the absence of the left testicle from the scrotum. He was bled *ad del. animi*, in the erect posture, and nauseated with tartar emetic, with a view to produce relaxation, but without effect. As a dernier resort, we used, with much caution, a tobacco enema, which relaxed the parts and the system generally. It had also the effect of reducing the size of the tumour, and enabled us to return the testicle into the abdomen.

The patient informs us that the left testis has never descended, and that the right, for the last two years, has been alternately present in the abdomen and scrotum. When in the latter position, he always suffers pain in both these parts, which is not relieved until the return of the testis. He is a boy of good general appearance, and in all respects well formed. He states that he has little or no carnal desire, and has never had sexual intercourse.

Dr. M. further says: "As the descent of the testicle is always attended with pain and the risk of strangulation, the question arises whether it would not be better to retain the gland within the abdomen. I am not satisfied that a portion of intestine or omentum did not pass out of the abdominal ring with the testis. If such were not the case, I am entirely at a loss to account for the sudden appearance of so large a tumour, and its equally sudden disappearance after the muscular system became relaxed by the tobacco enema."

ART. XII.—*Notes of Hospital Practice.* By HENRY HARTSHORNE, M. D.

IN the wards of any well filled hospital, a great number of interesting cases must present under more favourable circumstances for the study of disease, than can usually exist in private practice. Under this idea I have prepared an abstract of notes, taken during the last two years in the Pennsylvania Hospital,—not in minute detail, but with a view in each case to some point of particular study. Where inexperience may have been mistaken in this object, and supposed that to be novel which to others is perfectly familiar, allowance must be made.

The irregularity with which different subjects are treated as to order of presentation, is of course the result of the manner in which all notes of actual cases must be taken at the different times when they occur. Some attempt at summary, however, will be made.

CASE I.—*Empyema, with Perforation of the Walls of the Chest.*—Although the result of pectoral inflammation is certainly far from a common one, it so happened that three cases of it occurred in the hospital at the same period, during the service of Dr. W. Pepper.

The first, a German named Duerstein, aged about thirty, was admitted into the surgical wards (11th mo., 1845) for a fractured humerus. During his stay there, he contracted a severe pleuro-pneumonia;—which degenerated into chronic pleurisy with extensive suppuration. Being transferred to the medical wards, the case progressed in spite of treatment, producing emaciation, irritative fever and debility. After several months, the expectoration was observed to increase; and still later, with an extension of the dullness on percussion of the side affected (right side), a tumour began to be developed there, in the neighbourhood of the fifth rib. An alternation was then noticed between the amount of expectoration and the size of this tumour, which would perceptibly expand or lessen from time to time. Upon this fact, and the amphoric respiration at that part, Dr. Pepper founded the diagnosis, that a fistulous opening existed between an abscess in the pleural cavity and the lung. When this opening became obstructed, expectoration would be diminished, and the external swelling increased; and *vice versâ*.

4*th mo.*, 1846. After the lapse of one or two months more, the swelling becoming larger, softer, and more painful, the treatment of it became an important question. But before any interference was decided upon, a small rupture of its surface occurred spontaneously, and the patient produced others with a pin in the night, allowing the exit of pus. Dr. Pepper then enlarged the orifice with a lancet. A gradual discharge of matter took place; his pain was nearly all removed, and all the symptoms ameliorated. Under iodide of potassium as a tonic and absorbent, and the use of morphia to allay cough, he continued better, although without much progress toward recovery, as long as he remained in the house, which was about three months more. The same alternation, however, between the external discharge and that by expectoration, continued with less inconvenience than before. When he left the house, he was able to walk, but was very thin, and still had a very troublesome cough.

Case II.—Bernard Turner, aged forty, had a fistula in his side when admitted. He was very feeble, emaciated, and with violent cough and night sweats. Of his previous history, we could only learn that he had been attacked with pleurisy more than a month before, which attack had become chronic; and that an abscess, pointing in his side, had been opened by a physician, thus producing the fistula. Examined carefully by Dr. Pepper 5th mo. 11th. He found dullness on percussion of the left side, both anteriorly and posteriorly—anteriorly with a well-defined limit between the third and fourth ribs; no respiration on the left side, exaggerated on the right. There was no sound to indicate fistulous communication between the lung and the pleura. The left side of the thorax was somewhat larger than the right. Dr. P. could not detect, with the probe, any opening into the pleura, although he supposed it probable that one existed. The discharge from the external orifice (which is at the middle of the left side anteriorly—over the sixth rib), is at present only a few drachms daily.

The diagnosis was, that pus existed in the left pleural cavity, from chronic pleurisy, without supposing that the lung and pleura communicated. The first treatment was with iodide of potassium, infusion of quassia, nourishing diet—with porter—and a cough mixture of morphia and syrup of tolu.

6th mo. 2d. His side has healed up,—but in his symptoms and general condition, there is little change. A few days after this, the iodide of potassium was stopped, and quin. sulph. and pil. ferri carb. substituted—continuing the other treatment.

17th. Has certainly improved steadily, though slowly.

7th mo. 11th. Does not retrograde. He went out of the house in the 9th month, in tolerable condition, but still with some cough.

He was readmitted 6th mo. 16th, 1847, for a pain in his side, but principally on account of the interest of his case. He had grown stout, and looked vastly better than he did a year before. The fistula had occasionally reopened, and discharged slightly for a short time during his absence,—but closed, finally, about eight weeks before his second entrance. Since its closure he had felt a sense of weight and pain in that side of the chest. Percussion is dull, however, only over a small space, and respiration only absent within the same narrow limits.

The pain was relieved, at first, by cupping and vesication, but returned and increased.

6th mo. 23d. A pouting as big as a marble, and fluctuating, was found over the site of the former fistula; this Dr. Pepper opened with a lancet, and a tablespoonful or two of pus escaped. The next day his pain had disappeared.

30th. He remains pretty well, and free from pain.

Case III.—Charles Logue had been ill for six months before admission, with cough from the first, of the exact pathology of which we obtained no medical information. He stated that a tumour of his left side had been opened by a physician about six weeks before we saw him. It had then discharged several ounces—the rest being "corked up" by the doctor for fear of weakening him, and allowed to pass off afterwards. His pain, and the harshness of his cough, were eased by the discharge.

The opening was near the sixth rib, below the cardiac region. It gave exit to a large amount of pus daily. He also coughed a good deal, spitting muco-purulent matter;—had considerable pain in the chest, and a slight diarrhœa. Treatment—quinine and iron, full diet, morphia cough mixture, and afterwards p. opii et ipecac. in pill to check his diarrhœa. He appeared, at first, to gain a little strength,—but no essential change took place for some weeks, when the diarrhœa became worse, and aggravated his debility. He was removed to the almshouse; and, although living when we last heard, which was four or five months later, has, most probably, died a victim of phthisis.

Remarks.—In the first of the above cases, resulting from pleuro-pneumonia, there existed not only an external fistula, but also a communication between the lung and the cavity of the pleura. In the second, from pleurisy, we had no proof of any opening into the lung. In the last, of tubercular origin, extensive disease of both lungs and pleura, and the double fistula. In the last two, the opening was in the left side,—in the first, in the right.

The interesting point, with regard to them all is, the effect of *opening* the pleural abscess, when it projected between the ribs, forming an external tumour. In the consultations held over one of them, it appeared to be thought very doubtful whether an incision was proper, or even safe; an idea being entertained that perhaps the entrance of air under such circumstances might be deleterious.

But *à priori* considerations are really against this opinion; the adhesive inflammation which limits the traveling of pus within the chest, with such force as to compel a distension of the integuments, and the formation of a tumour, must certainly, even if the discharge did not prevent it, guard against any injury from the entrance of air. The real difficulty was to be certain in diagnosing the contents of the tumour. But all the appearances and signs, physical and rational, combined to favour the existence of suppuration. And the event of each case proved satisfactorily that the indication was, as pointed out by the efforts of nature, to *open it.* Exactly the same rules should apply to this, as to any other kind of abscess; when it becomes large, soft, and begins to fluctuate, and, by colour, makes known the approach of matter toward the surface, this should be facilitated, and the patient relieved by a careful incision. It is well known that some practitioners extend this treatment even to the management of phthisis, by perforating the walls of the chest, to evacuate a tubercular cavity in the lung.

Case IV.—*Recovery from Phthisis.*—A man named Evans, aged 27, was admitted in the fall of 1845, into the surgical wards, for a bad ulcer of the leg. He had then all the marks of confirmed consumption; emaciation, hectic, night-sweats, debility, severe and constant cough, with copious expectoration of pus, cavernous respiration, and dullness on percussion over the right lung.

He was ordered infus. prun. Virginian., good diet, and an opiate cough mixture, and the ulcer gradually reduced to a moderate size. It was then occasionally induced to discharge by a poultice for a few days—as he had noticed that when the sore had been nearly healed, his cough and general symptoms were worse.

Being transferred to the medical ward, the same treatment was continued for several months.

4th month 29*th*, 1846. He is now in good flesh and colour; has *no cough*, scarcely any soreness of chest even on breathing hard, no hectic nor night-sweats, and only a slight expectoration of puruloid matter. This, and very decided cavernous respiration and dullness on percussion over the right lung, are the only signs of disease left. The sore on his leg is now quite small, and discharges little.

5*th month* 4*th*. He leaves the house to-day in good case, the ulcer healed. We can consider this nothing else than a recovery from consumption, under circumstances of the greatest disadvantage.

Locality of Tubercle.—The rule which is laid down by authors, that phthisis attacks in preference the *left* lung, has met with many exceptions in our recent hospital cases. For several winter months, more than half of a considerable number of phthisical patients gave evidence of the disease in the right side. Nor was the *upper lobe always* prominently affected; although of this fact we had less opportunity of verification by autopsy, and the apparent exceptions to the rule were few.

Case V.—*Tuberculosis developed by Pneumonia.*—The history of a case was simply this. Thomas Galway, aged 30, was admitted with a complication of pneumonia with nephritis; as shown by all the symptoms and physical signs, under Dr. Gerhard's examination.

In the course of a month, the disease of the kidney gave way; but the pneumonia passed through the second and third stages—emaciation, hectic, and night-sweats supervened, and, finally, cavernous respiration, crackling, and profuse expectoration convinced us that phthisis was present.

He died about two months after the commencement of the attack. On post-mortem inspection, all the evidences of pneumonia were found in both lungs, particularly the left, in the middle and lower lobes. And in the most inflamed parts tubercles were seen, in the hard condition of recent formation, excepting one large cavity from softening, in the middle lobe. Dr. Wood concluded that the *pneumonia had developed* phthisis; because the tubercles coincided in situation with the inflammation, which was in the ordinary site of pneumonia, but an uncommon one for tubercle, unless when pervading the whole lung, as it did not here; and because the right lung, which had less inflammation, had also less tubercle. In both lungs, the upper part, where phthisis usually begins, was entirely healthy. The pneumonia was also evidently old, the tubercle mostly new.

Remarks.—The question whether inflammation ever develops tuberculosis, appears then to have an affirmative answer in this case. Authority would determine, however, that it is much less common than the reverse order of things.

Are we not, nevertheless, called by such a case to consider the occasional need of temporary *active* treatment for thoracic inflammation with acute symptoms, even in a person thought to be of a phthisical diathesis? There is perhaps too much opposition to moderate blood-letting, &c., in such instances. Although healthy nutrition is the great indication, yet it should be an even and tranquil nutrition, without any excess of stimulation. And the stimulus of an actual inflammation must of course be the worst of all.

Internal use of Chloroform.—When the inhalation of this substance as an anæsthetic began to attract universal attention, we made at the hospital, at Dr. Wood's suggestion, some investigation into its effects when taken internally. Although very sweet, it is so pungent as to require a large proportion of gum water to obtund its effect on the tongue, throat, and even stomach.

Seventy-five drops gave me a sensation of general diminution of consciousness and sensorial capacity. Sight, hearing, and touch were all made less impressive, but no feeling of exhilaration or of derangement occurred. Drowsiness was positive. The pulse was not at all accelerated; in fact, it was two beats less in the minute. The same effects followed in two other medical gentlemen from two or three times the quantity. One swallowed a drachm, or over 200 drops. He became very heavy, and after a short interval went into a sound sleep. The effect passed off in all of us after an hour or two. No one felt exhilarated or deranged as by alcohol, and in none was the pulse increased. The conclusion was positive in all our minds that it is a *direct sedative* to the cerebro-nervous system—a sedative narcotic.

A woman who suffered with a most obstinate and painful neuralgic affection of the side and head, took 75 drops at night. She slept better than she had for weeks, even after inhaling ether or chloroform, as she had repeatedly; and was also unusually comfortable the next day. She then continued to take it, in a somewhat larger dose, for two or three weeks, every night; and improved under this more than under any other treatment.

From the pungency of chloroform I was induced to expect carminative powers. Upon trial in a number of cases of flatulent colic, I found it in the dose of 75 drops, sometimes repeated, to give prompt relief. It was then used as a substitute for Dover's powder as a soporific at night in rheumatism; and there answered admirably. There was but one patient, a woman with cancer of the uterus, to whom it was given as an anodyne, who alleged that it disagreed with her, causing headache and sickness of stomach without sleep or relief.

Believing it to be less constipating and more purely sedative than morphia, I tried the addition of it to cough mixtures in place of the latter. But here the objection presents, that so large a quantity of mucilage is required, as to oppress the stomach; or, if given in alcoholic solution, the stimulus of this vehicle might be undesirable. Still, as it is very pleasant to the taste, it might be added in small quantity to such mixtures, lessening the usual amount of opium in them.

It might be worth while to try it by enema in strangulated hernia, as a powerful relaxant to the system generally, and at the same time an excitant of peristaltic action. It is our impression that it is somewhat laxative even when taken by the mouth; but our experiments did not render this certain. There is no doubt, however, that as a purely sedative narcotic and carminative, having the advantage of a sweet, pleasant taste, it might often be made a serviceable medicine.

ART. XIII.—*Further Observations on Trismus Nascentium, with cases illustrating its Etiology and Treatment.* By J. MARION SIMS, M. D., of Montgomery, Ala.

IT must not be disguised that there are cases of this disease, in which the displaced occiput cannot be rectified by any means whatever. The child is then born but to die, and will generally manifest symptoms of the disease at an early period; indeed, most frequently from the very hour of birth.

Before proceeding farther, it may be profitable here to take a brief retrospect.

1st. I have related cases, in which trismus nascentium resulted from an *inward* displacement of the occipital bone; that displacement being easily detected.

2d. I have produced facts showing that the same state of things may exist, when the displacement is so *slight* as not to be recognized, unless by a peculiar method of examination.

3d. I have adduced a series of cases, exhibiting the same characteristics, in a minor degree, depending upon the same mechanical agency; and relievable in the same speedy manner, which I have, for obvious reasons, denominated *trismoid.*

4th. I have produced cases to show that the displaced occiput will occasionally require surgical interference, before it can be properly adjusted.

Thus it will be seen, that the cases, so far adduced, are all of one general character; all go to show that the disease is the result of pressure exerted at the base of the brain; and in all this, pressure was produced by an *inward* displacement of the occiput, differing, however, in degree from the slightest to the greatest.

This brings me to the consideration of a class of cases, in which the disease was not the result of an *inward* occipital displacement, (and dorsal decubitus,) as in the foregoing, but was plainly caused by an opposite state of things—by a prolonged lateral decubitus, with a position of the occiput *exterior* to the parietal bones. This relative position of these bones is the only proper one in extra-uterine life. While my facts, so far, would seem to establish the law that there is no safety, if the occiput be not *exterior* to the edges of the parietals, the following cases will show that there is danger, if it be carried too far.

CASE XI.—A negro child, male, born on Tuesday, the 4th of May, 1846, had been kept on its sides constantly, for the express purpose of preventing trismus. It did very well till Tuesday night, the 18th, (then two weeks old,) when *it refused to suck*, fretting and crying all night. Its jaws were closed, so as to prevent the introduction of the nipple, but could, as in all cases of this disease, be forced asunder by the finger. After much exertion, however, the nipple could be got into the mouth, and then it would suck tolerably well. On Wednesday, it was pretty quiet, but could not suck any better than during the night before. Thursday and Friday, its condition was much the same. It had no other bad symptom, besides this great *difficulty of sucking*. No tonic rigidity, and no clonic spasms, save the facial spasm, induced only when the mother attempted to suckle it.

I saw it for the first time on Saturday the 22d. At night it lay in the bed with the mother, *on its side, with its head resting on her arm.* During the day it slept in a cradle, *on its side*, with a pillow placed crosswise under the head. The occiput was *not* pushed under the parietal bones; on the contrary, it overlapped them all along the lambdoidal suture, thus occupying its proper relative position.

At this time I was carried away with the erroneous idea of "spinal congestion and spinal hemorrhage," and thought it impossible for these to occur, when the child had been laid on the side, so as to prevent a stagnation of the spinal circulation. I could not, therefore, understand how the disease was developed in this case. The fact that the child's head had been supported on a large pillow during the day, and on the mother's arm at night led me to suspect, that the sudden lateral flexure of the neck might possibly have something to do in the chain of causation; so I directed the mother to retain it on the side, but to place the pillow *lengthwise* the cradle; thus making an inclined plane of it, so as to prevent the crooking of the neck. In the evening, I found the child as before, not able to suck any better; but, as the mother had put the same old pillow *crosswise* under its head again, to this I still blindly attributed the persistence of the symptoms.

Once more I placed the child *properly* on its side, giving most peremptory orders to keep it so. Next morning (Sunday), it was no better, although the directions had been followed. The relative position of the bones was the same, the occiput overlapping the parietals very considerably. By compressing the parietal protuberances firmly between my hands, I found that I could very easily make their posterior edges approximate each other, thus lessening slightly the bi-parietal diameter, while the occiput was consequently thrown further outwards. I now, for the first time, suspected that the child had been kept too long on its sides; and that the hard arm of the mother had done the mischief, instead of the pillow. So, I directed a dorsal decubitus, the weight of the head to fall on the occiput. This, continued for two days, did not appear to improve in the least the *difficulty* of exercising the *sucking* process.

The only effect noticed from the dorsal position, was a separation of the parietals along the sagittal suture, putting the commissure on the stretch. The lateral decubitus was then tried for another day, but with no amelioration of symptoms, or modification of the relative position of the bones.

On Tuesday night (8th day of the disease), the child became worse, fretting and crying all night. It continued so for the next week, there being no important change till *Tuesday night again*, when it seemed to be much better, resting well and sucking more easily and freely; and in a week more all the trouble wore off, as it were, imperceptibly. For the last two weeks it had a diarrhœa, the dejections being of a greenish mucus, which continued, in spite of the usual remedies, for a good while after all difficulty of sucking was overcome.

The progress of this case was not controlled or modified by any active interference. It appeared to run its course and exhaust itself independently of anything that was done: observing, at the same time, a most remarkable hebdomadal periodicity in its various phases—for instance, it was born on Tuesday night, the 4th of May: was taken with the first symptoms of the disease on Tuesday night, the 18th (when two weeks old): was much worse on Tuesday night the 25th, and continued so till Tuesday night the 1st of June, when it got much better, and by the following Tuesday, 8th, nearly every trace of the disease had disappeared.

If this had been the only case of the sort that occurred to me, I should never have been able to reconcile it with those in which the occiput was *within* the parietals; but, fortunately, I have two others of a similar character, which throw more light upon the subject.

CASE XII.—Ann, primipara, belonging to Mrs. Somerville, was delivered of a male child, after a labour somewhat tedious, on Wednesday, the 6th of January, 1847. On Saturday the 15th (being nine days old), it became very fretful, and *would not suck, whined* and cried all night. Same condition on Sunday and Monday, when it was sent to me. *It could not suck at all.* Its jaws were firmly closed. It had occasional clonic spasms; some tonic (flexed) rigidity of the extremities, with the thumbs thrown across the palms: could swallow very well when milk was put into the mouth, but could not exert the slightest suction power when the nipple was placed there. It did not seem to have an easy moment: groaning, writhing, whining, and crying in a half stifled tone all the time.

Its head presented a remarkable appearance, being flattened in front, mashed backwards, and elongated in the direction of the vetex to an enormous extent.

The occiput was *not* overlapped by the parietals, but was on the *outside* of them, in its proper place. As in the last case, the edges of the parietal bones appeared to be pushed too far under those of the occiput, particularly up towards the posterior fontanelle. By compressing the parietals laterally, just at the edges of the lambdoidal suture, and also by a direct but slight pressure on the occiput, just a little behind the foramen magnum, every symptom of the disease was greatly aggravated. Relaxing the pressure would relieve the symptoms immediately, or at least allow them to remain as at first. This experiment was repeated "over and over again," with the same unvarying results, modified in almost exact proportion to the degree of pressure.

The nurse who brought the child to me, said *she thought* it had been lain mostly *on its back.* This representation did not agree very well with the *exterior* position of the occiput; and I was at a loss how to reconcile this fact with the relative position of these bones; because, as I have had occasion before to remark, when an infant has been kept upon the back during the first week or two, the occiput is *obliged* to remain displaced *inwardly*, its edges being overlapped by those of the parietal bones, whilst a continued lateral decubitus will in nineteen cases out of twenty, reverse their relative position, which, being once accomplished, is never changed, at least in heads where the bones are well ossified.

From the perfect resemblance of this case to the one last described, I concluded that it, too, would become chronic: and accordingly gave that prognosis.

Having tried the experiment of laying the child in every position possible, I found that the semi-lateral decubitus, as well as the dorsal, had a decided tendency to aggravate all the prominent symptoms. And, that a purely lateral decubitus exerted a like influence in a minor degree, while a fronto-parietal posture seemed to ameliorate them. [Let me explain what I wish to be understood by these terms. The term *dorsal* explains itself. By *semi-lateral*, I mean, when the child lies neither on the back nor on the side, but in a position between these two, which will throw the weight of the head on that part of the parietal between its protuberance and the lambdoidal suture. *Lateral* is used when the weight of the head is sustained on the parietal protuberance: and *fronto-parietal*, when it falls near the outer edge of the orbit.] A careful *fronto-parietal* position soon ameliorated all the distressing symptoms. The child soon stopped crying and "writhing about:" had no chronic spasms after the first day, and no borborygmus. It slept well, but *could not suck*, nor open the mouth any better. It was changed frequently from side to side, but it always rested better on the left; because the parietal bone was not shoved under the occiput to so great an extent here, as it was on the right side, and hence a less degree of compression was exerted upon the great nervous centre.

I retained the child at my own house, so that I might watch it the more carefully, having determined to puncture the scalp, and elevate the depressed edges of the parietals, if it should become necessary; but, as its condition had improved so much in twenty-four hours, I sent it home with proper directions for its management, and with instructions to bring it back to me if it should get worse. Being confined to my bed at the time with a long spell of sickness, and hearing occasionally that it was no worse, I did not see the child after this till Thursday the 28th of January, the thirteenth day of its disease, when it was again brought to me. I was surprised to find that it had been getting progressively worse, from day to day, till now it presented a most aggravated form of the disease. Its hands were closely clinched; forearms flexed upon the breast; thighs, legs, and feet all in a state of rigid demiflexion; there was no such thing as straightening them by any warrantable degree of force. It had frequent and severe spells of clonic spasm, with hard-featured grimaces, and a whining, barking, half-suppressed sort of cry. Jaws still locked—could swallow, but was wholly *unable to suck;* and had a diarrhœa superadded to its other symptoms. During the clonic spasms, its mouth is twisted to the right side, and its head bathed in a most profuse perspiration. The face looks quite placid, when not contorted by these horrible spasms, which recur spontaneously every few minutes, or are induced at any time, by a sharp sound, by motion, and by the gentlest titillation of the lips and nares; and also, by the evacuation of wind or feces, or else this latter is a concomitant of the spasm, which is, perhaps, more probable.

I looked upon the case now as almost hopeless, but, as a matter of experiment, I punctured the scalp over the lambdoidal suture on the right side, with the point of a short strong knife, and, making a lever of it, pryed out slightly the corresponding edge of the parietal bone, which produced a very severe attack of clonic spasms. I did not wait to see the effect of the operation, but sent the child home immediately, not hearing from it till I was able to visit it two days afterwards, when I obtained from the mistress a more correct history of the case.

She says, that immediately after the puncture of the scalp (two days ago), the child's crying was strong and natural, opening the mouth widely, so that the tongue could be seen distinctly—and this for the first time during the progress of the disease—and that it now rests better on the right side than the left. Before, it rested better on the left side, because the left parietal being less depressed, produced, of course, less compression of the brain; but now it lies best on the right side, for the reason that the slight puncture has, to some extent, elevated the depressed edge of the right parietal. She says, moreover, that, after the puncture, the child could extend the arms voluntarily, (a thing it had not done before,) but that the wrists remained flexed. To straighten the wrists, would be at the expense of flexing the forearms; otherwise it could not be done.

Mrs. Somerville also informed me, that the mother, up to the time I first saw the child, always kept it square *on its side*—nor does she remember ever to have seen it lying in any other position than this, *with its head resting on the mother's arm.* This statement differs from the one given by the nurse, and explains readily enough the relative position of the bones; for the constant pressure of the mother's hard arm on the parietal protuberance accounts for the inward *abnormal* displacement of the edges of this bone. I say *abnormal*, because the displacement was greater than it would have been under ordinary circumstances, and greater than is necessary for holding the occiput in its proper place *exteriorly.*

It was now easy to understand how the child had been getting worse for the last twelve days, for Mrs. S. says, that the nurse, not a very intelligent negress, had told her, as I directed, to lay it on the side, and keep it so; and that she had followed the directions to the letter. This obedience to instructions, not sufficiently explicit, had the effect of driving the edges of the parietal bones further under the occiput than at first, and hence the aggravated state of the disease.

Mrs. S. had observed that the act of laying the child down, *always* induced violent spasms, which lasted for a long time, gradually yielding to a state of quiet and sleep, or rather stupor. She noticed often, that these bad spells could be instantly relieved by changing it to the erect posture, and that it could open its mouth wider, swallow better, and cry louder when erect, than when it was lying down—and that it was easier the more it was laid over on its face. Did not these facts, particularly when conjoined with the day's observation at my own house during the early history of the case, plainly point out the course to be pursued?—and the course which the good common sense of Mrs. S. would, in all probability, have taken with it, had she not been restricted by direct instructions from me (carried loosely and carelessly by the nurse), to keep it all the time on its side? Of course I ordered immediately what was so plainly indicated, viz.—to hold the child erect as much as possible, and when it became necessary to lay it down, to place it in the *fronto-parietal position.* This was at nine o'clock in the morning. I visited it seven hours afterwards, viz. at 4 P. M., and ascertained that *it had not had a single clonic spasm since the erect posture and fronto-parietal position had been observed*—whereas before, they were frequent; that it had slept quietly all the time—whereas before, it hardly slept at all, and was never quiet, unless in comparatively a comatose condition.

Sunday 31*st*, 11 *A. M.* It cried but twice last night; formerly it fretted and cried all night long. It now cries louder and freer, having less facial spasm. After dressing it this morning, Mrs. S. held it erect till it literally nodded itself asleep, when it was laid down, as before directed, without the slightest disturbance.

4 *P. M.* It has been asleep ever since last visit. It now has the power of turning the head spontaneously, notices any noise, and for the first time, sharp sounds do not excite clonic spasms.

Tuesday, February 3*d*. It sucked to-day for the first time since the disease set in (18th day). It was somewhat difficult to get the nipple into the mouth, but when it got a good hold, it sucked very well.

A further daily report of the case would hardly be profitable. From the very moment that the erect posture and *fronto-parietal* position were instituted, the child began to improve. Does it not exhibit in a wonderful manner, that a very trifling difference in position may exert the most powerful influence for good or evil? Thus, we see the disease developed while the child's head lay on the hard arm of the mother. We next see the urgent symptoms ameliorated by a careful position. Again, they are aggravated to a tenfold degree by a prolonged *lateral* decubitus, whereby the edges of the depressed bone are pushed farther under the occiput; and then again they are modified, for a time, by puncturing the scalp and elevating the bone. We now find them better when the child is held erect, so that there is no pressure at all on the head: worse again when it was laid down in such a way as to drive the depressed bone further under. And finally, we see it immediately relieved of all the urgent symptoms, and gradually relieved of the whole disease, simply by attending to such a position, and such alone, as would prevent a pressure, which, from the very nature of things, is obliged to be expended upon the medulla oblongata.

Even after the predominant or urgent symptoms had been relieved, there were still evidences of some persistent derangement of the symptoms. For instance, its face looked hard, furrowed, and old, its hands remained shut, with the thumbs thrown across the palms, and the thighs, legs, feet and toes remained in a state of rigid demiflexion. These contractions all gradually gave way, but were something like two months in doing so. During this time, I would occasionally puncture the scalp over the lambdoidal suture, with the point of a crooked awl, and prize out the edges of the parietal bones, and always, with the effect of greatly modifying the rigid flexures of the extremities. The operation, being simple and safe, was frequently performed, without the loss of a drop of blood, and invariably with the direct effect above described, thus showing plainly that it was pressure on some part of the great nervous centre, which, irrespective of every other condition, was producing all the mischief.

Case XIII.—A negro woman, Frances, gave birth to her third child, a mulatto, on Monday, the 8th February, 1847. Nothing unusual in the labour. It seemed to be doing well till Friday the 12th, when it fretted all day, but did not refuse to suck till about six o'clock P. M. It rested pretty well, however, until midnight, when it waked up crying and whining, and *could not suck at all*. It continued in this way all day Saturday. I saw it late in the afternoon, and immediately recognized the disease. It had been kept all the time on its sides for the avowed purpose of preventing trismus; but *its head rested on the mother's arm*, night and day, whether it was applied to the breast or not.

Occiput occupying its proper relative position *exterior* to the parietals; but these have been, by the hard arm of the mother, pushed farther under the edges of the occiput than is compatible with safety. I cautioned the mother against the danger of supporting the child's head on her arm, and as there was nothing urgent or alarming about the case, the *inability to suck* being the most prominent symptom, I told her that the disease would, in all probability, become chronic; that she must not feel uneasy as to the result; that if it should get worse, I would operate on the bones of the head, and thereby relieve the disease; that there was no immediate danger, and I did not therefore deem an operation now necessary, or even justifiable. So I left without making any other prescription than a frequent change of position, merely guarding the mother against the danger of supporting the head on her arm.

Being exactly like the two cases last related, I thought it would run the same long course, and eventually get well, for my mind was full of the idea of *spinal hemorrhage*, and I supposed that, while a child was kept on the side, this could not occur, and that death could hardly take place without it, and therefore that I could safely afford to watch the case. I felt no uneasiness at all as to the result, but I was very greatly mistaken. My confident manner of speaking deceived the mistress and the mother of the child, and although it continued to get worse very rapidly after my visit, still I was not apprised of its situation. Being called some distance into the country early the next morning, I did not return till late in the afternoon, and was somewhat surprised when my friend Dr. Boling informed me, that he had been attending my little patient all day, that he thought it would die very soon, and that (as he jocosely remarked), "I had better hasten to it and see that it was placed in a *proper position*."

When I arrived, I was astonished to see it in what I usually considered the fatal stage of the disease. Tonic rigidity extreme—clonic spasms violent and very frequent, following each other in rapid succession—head deluged in a most profuse perspiration—perfect inability to swallow—pulse imperceptible—respiration very frequent (138) and panting. Really, the child looked as though it would die directly. When I left my office, I picked up a crooked awl, with which I intended to puncture the scalp, and push out the edges of the parietal bones; but, as it then appeared to be moribund, I feared to make the attempt, lest its death should be attributed to the punctures with the awl. For experiment, however, I turned the child over on its belly across the mother's lap, with its chin resting on her knee, so as not to obstruct its respiration, while I stooped down to watch the expression of countenance. Very soon, the panting and spasms ceased—the hands became relaxed—the mouth fell open, and the child got quiet. For a moment, I thought that this new position had done wonders, in the way of relieving its sufferings, and perhaps it may, for I soon discovered that it was (to all appearance) dead. I took it in my arms, and turned it over on the back, secretly congratulating myself that I had not punctured its head with the awl; when it gave a gasp, and a slight spasmodic quiver thrilled gently, but suddenly, through its whole frame. The mistress, the mother, and all present, thought the child dead. I gave it a shake, and threw some water in its face, to excite, if possible, the respiratory act, which produced no more effect than if it had been thrown on a stone. While wiping its face, it had another quivering to agitate its whole body. I now quickly turned it over, punctured the scalp along the lambdoidal suture, and prized out the edge of the parietal bone. This produced a general spasm, —then another—and another—and a gasping respiration, the eyes flying open—all resembling very much the effects of electricity suddenly applied to a body just dead. The other side of the head was punctured, and, in like manner, the edge of the other parietal bone was pushed out. The breathing improved; indeed, became regular. The tonic rigidity of the extremities returned. The jumping clonic spasms were re-established, and the child was recuscitated. All this appeared to be the result of motion, communicated to the nervous centre, by prizing out the edges of the parietal bones, which first excited general muscular contractions, and a gasping respiration, whereby the vital spark, not quite extinguished, was again lighted up. These punctures and prizings had the effect of elevating to some extent, the depressed edges of the parietal bones, but the occiput was not forced under them.

After this, the child was placed carefully in the *fronto-parietal* position (before described), with the view of preventing the further displacement of the edges of the parietals.

10 *P. M.*—It has now been five hours since the occurrence last described. The occiput is occupying about the same relative position, *exterior* to the parietals, as when I left. The edge of the right parietal seems not to be too far under the occiput; but that of the left is, especially up towards the posterior fontanelle;—so I punctured again with the awl, and prized out this side a little more, but not enough to change the relation of the two bones. There is considerable febrile reaction,—breathing less than 80 per minute—panting and grunting with every expiration—less tonic rigidity—hands and forearms can be extended by a little force, which could not be done before—has slight clonic spasms every two or three minutes, during which it groans and *strains*, being apparently threatened with asphyxia.

Still impressed with the idea that it was the *spinal hemorrhage* that caused death in this disease, and knowing there was no chance for this to take place while the child was not laid so as to favour the gravitation of the blood toward the spine, I blindly indulged the hope that it might yet recover. But it died at day-light on Monday morning. It did not die as children usually do of this disease—with violent agonizing, asphyxiating throes, but its strength gradually failed, and its life flickered away gently, almost imperceptibly. It lived twelve hours after elevating the depressed edges of the parietal bones, having been sick, in all, about three days.

Post Obit. eight hours after death.

[Let it be remembered that this child had never lain on the back from the hour of birth till it died—and that it died lying in the *fronto-parietal* position.]

Umbilicus—healed up beautifully.

Spine.—In cutting down on each side of the dorsal vertebræ to the transverse processes, for the purpose of taking out the spinal column, blood flowed very freely, but three times as much so from the right side as the left. Same phenomenon observed in cutting through the muscles in the cervical region. This is easily explained by the fact that the child was confined to the right side during the last hour of life, which, of course, favoured the gravitation of the blood more to the right side of the body, and correspondingly, to the right side of the spinal column.

Medulla Spinalis—no extravasation within the Spine.—There was some little on the posterior surface of the medulla spinalis, exterior to the dura mater, and just opposite the upper dorsal vertebræ, but it was evidently a post-mortem appearance, as it occurred only in the concavity of the column, where the blood was obliged to settle down, if at all. If it had been *ante-mortem*, it would have been found on the *side* of the medulla, as the child had never lain on its back during its life.

Brain—perfectly bloodless.

Lungs—congested, exhibiting a most marked appearance of deficient oxygenation.

Other viscera—normal.

This completes the number of cases that I shall bring forward on the present occasion. I have many others, but these will suffice for all practical purposes. They seem to me to justify the conclusion that trismus nascentium is the result of mechanical causes; the *predisposing*, being protracted or tedious labour, but particularly, a too well ossified state of the fœtal cranial bones. The *exciting* cause is undue pressure on these bones, more especially on the occiput; while the *immediate* cause is undue compression of the medulla oblongata and the nerves originating from it.

These cases are, naturally enough, divided into two great classes. The first and largest is, where the occiput was displaced *inwardly*, with its edges overlapped by those of the parietal bones. In the second (embracing but three cases), the occiput occupied its proper relative position on the *outside* of the edges of the parietals. In the first, the children had been retained mostly on the back, or in the *semi-lateral* position. In the second, they had been kept constantly on one side or the other; and all three of them had the head supported principally on the mother's arm, thereby causing an approximation of the parietals under the edges of the occiput.

Now it may very reasonably be asked, "How does pressure, in these two opposite modes, produce precisely the same results?"

This problem puzzled me for a while, but it is now easily explained. Let any one who feels curious on this point, procure a recent fœtal head, cut away the frontal bone, and scoop out the cerebrum, leaving the falx, tentorium, cerebellum, and medulla oblongata and its nerves, *in sitû.* If the occiput is not very movable, let him cut it loose from the parietal bones along the lambdoidal commissure, leaving a small point of attachment right at the apex, or posterior fontanelle. In this condition, the bone can be made to lap over, or slide under the edges of the parietals, at will. Now let the occiput be displaced *inwardly*; make firm pressure upon it, at the same time that you look through the opening made by the removal of the os frontis; and it will be seen that the displaced occiput pushes forward the whole of the cerebellum (with the posterior lobes of the cerebrum); that the pons and medulla oblongata are pressed forcibly against the cuneiform process of the occipital bone; and that the fifth, seventh, eighth and ninth pairs of nerves are compressed, pinched, stretched, or thrown into folds near their several points of emergence from the cranium. And here it would be easy enough to analyze the different symptoms of the disease, showing their dependence upon this pathological condition. For instance, the ninth pair of nerves (distributed to the muscles of the tongue), coming out of the fissure between the corpus pyramidale and olivare, being the first and easiest compressed, accounts for the difficulty of sucking being the earliest symptom of the disease. The accelerated circulation, but particularly the hurried breathing, and the laryngismus, may be traced along the eighth pair of nerves and its branches; while the hard-featured, puckered-up expression of countenance, with the spasms of the eyelids, or their open paralyzed condition, may be seen along the portio dura of the seventh pair.

The locking or falling of the jaw, and the great difficulty of prehending the nipple, are referable to pressure exerted on the motor branch of the fifth pair. The tonic rigidity of the extremities results from the persistent pressure on the pons, propagated through it to the motor track of the medulla, while clonic spasms come on as a consequence of these, or are excited by sound, by motion, or anything affecting the excito-motor system.

The regurgitating sort of puking, the borborygmy, and the diarrhœa, are to be accounted for by the intimate connection existing between the sympathetic and the nerves implicated at the grand point of pressure. But why take up time with these physiological explanations? It is enough to point out the simple truth of mechanical pressure, and to demonstrate its ultimate expenditure.

Let us now see what is the result of pressure on the parietal bones, when the occiput is *exterior* to them. Give them, then, this relative position. Now look, as before, through the opening made by the removal of the os frontis; then compress the parietal protuberances laterally, so as to cause their lambdoidal edges to approximate each other, thus diminishing the bi-parietal diameter—and what is the consequence? Why, the posterior lobes of the cerebrum are compressed, and pushed down against the tentorium; the occiput is thrown out from its vertical direction, which causes a stretching of the tentorium; the cerebellum is consequently squeezed up between the tentorium above and the occiput below, and is thus made to slide forwards, pushing the medulla oblongata into its bed in the cuneiform process of the os occipitis, and compressing it there just as certainly and as effectually (though not quite so strongly), as when the pressure was made directly behind on the occiput. This is no guess-work—it is matter of absolute certainty, of mathematical demonstration. Thus we see that the apparent contradiction, in the two classes of cases, is easily reconciled; and that the disease in both results from a pressure, which, coming from opposite directions, is shown to be expended at precisely the same point. In the second class of cases, the pressure being less direct, and of course less powerful, accounts sufficiently for the disease being milder, and becoming chronic.

If it should be asked, "Do I relinquish the idea, formerly advocated, that a *spinal hemorrhage* is essential to the disease?" I answer, yes. I entertain no mere opinion which I will not give up at once if facts do not sustain it. Was there ever a more unequivocal case of trismus than the one last related? And yet the brain and spinal marrow were *both perfectly bloodless.* This was all explained by the position in which the child had been placed and retained, from the hour of birth up to the very moment of death. Does it not prove "that, under certain circumstances, a child may die of trismus in its most aggravated form, and yet have no extravasation within the spine?"

But that the greater number have this *spinal extravasation*, is proved fully by reference to different authors on the subject. For instance: Matuszinski observed twenty-five fatal cases. Post-mortem examinations were made in twenty. In sixteen, there was a *spinal hemorrhage*, and in the other four, there was none. How is this discrepancy to be accounted for? Why, every individual case must be studied by itself, and be decided on its own merits. I have known some cases to be developed at midnight, and to die in three or four hours; and I have heard of others that did not live six hours. Now, in these, I should not expect to find the organic change spoken of, because they die of asphyxia before there is time for any organic lesion to take place. But the great majority of cases live twenty-four, thirty-six, or forty-eight hours, or longer. In these, there is every probability that we will find the *spinal extravasation*, because the dorsal or semi-lateral decubitus (ordinarily observed), will cause a gravitation of the blood, and a stagnation of it, in and around the spinal canal, to such an extent, as to result in this extravasation, which could be prevented only by a very decided lateral decubitus, but which no one would, *à priori*, think of adopting.

What, then, is the cause of death in this disease? Why, they all die of laryngismus (and its immediate consequences), caused, no doubt, by pressure on the eighth pair of nerves. Relieve the clonic spasms, and, with them, the spasm of the glottis, and the other symptoms are of no importance. Look at Case XII., where the tonic rigidity continued for two months; where the expression of countenance was trismal all the time; where the difficulties of sucking lasted for several days; and yet, the very moment that the clonic spasms were arrested by a proper position, the child was evidently out of all danger. This fact suggests a very important lesson in such cases as are not susceptible of being remedied by position, or by an operation, and that is, to resort to tracheotomy* to prolong life till nature can accommodate the brain and nerves to the pressure, or till the nutritive function shall have effected the necessary changes in the shape and position of the parts exciting the morbid influence.

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* [Our esteemed correspondent should not overlook the fact that tracheotomy has been resorted to in tetanus, and has entirely failed. See preceding number of this Journal, p. 222.—Editor.]

A case occurred to me, last December, which would have justified this procedure. After a tedious labour, the child (a fine large boy), was still-born. With the establishment of respiration the first symptoms of the disease were manifested. The inability to suck, and the clonic spasms, existed from that time. The occiput was considerably depressed, and (as in Dr. M——'s child, Case X.), appeared to be too much curved in, up towards the apex, thus presenting the segment of a smaller circle than that described by the edges of the parietal bones, and could not, therefore, be made to overlap them. I tried a well regulated position for half a day, but as the child got worse every hour, I determined to resort to the operation of puncturing the scalp, and elevating, if possible, the edges of the depressed bone. This was easily done by means of a shoemaker's awl, the curve near the point resting against the edge of the parietal as a fulcrum, while with the point the occiput was prized out. But I did not succeed in this way; so I followed the plan of Dr. Harrison, and cut down on each side of the lambdoidal suture; then with the flat end of a strong probe on one side, and a common director on the other, I could push out the edges of the occiput.

The effect of this prizing was most satisfactory. All the urgent symptoms were immediately modified or controlled by it, but would instantly return with all their violence, by letting the bone fall back into its depressed position. This experiment of prizing out the occiput was performed frequently, with the same unvarying results. But it could do no permanent good, because the peculiar shape of the occiput prevented it from overlapping the edges of the parietal bones. Holding the bone thus, did not suspend the disease—it only mitigated the symptoms, so as to make them bearable—proving, beyond all doubt, that they were the result of mechanical agencies, and that, too, independently of every other consideration. I did not think of tracheotomy at the time; but if I should meet with another such case, I shall feel no hesitancy in resorting to it, simply with the view of keeping the trachea open till time and position could do the balance.

What are the immediate consequences to *vital organs* arising from pressure on the great nervous centre, produced by the displaced occiput? Why, the first and most dangerous is the spasm of the glottis, the *laryngismus*, which might *possibly* be averted by a timely resort to tracheotomy. The next is the spinal congestion and hemorrhage, which can be effectually prevented by a proper lateral decubitus. And the last is a prolonged diarrhœa and a consequent marasmus, which cannot be controlled by remedies, as long as the pressure persists. Thus it is seen that the *immediately* dangerous condition is the strangulation, the closure of the glottis. Case V. is an example of what may be endured, provided the respiratory function is not interrupted. This child had trismus from the end of the first week, till it was nearly five months old, but from peculiar circumstances, the pressure was thrown high up on the occiput, and was expended, no doubt, principally on the mesocephalon, and hence the respiration was not obstructed.

I have shown that the ultimate expenditure of the pressure is upon the medulla oblongata and its nerves. If the symptoms were the result simply of compression of the cerebellum, then would the effect be crossed—exhibiting itself on the opposite side, when the pressure happened to be more on one side: but such is not the fact. For instance, in Mr. Winter's son (Case III.), "the *right* edge of the occiput was pushed *under* the corresponding part of the parietal bone, while the *left* was riding *over* its parietal neighbor," and it had "occasionally a little *spasmodic quivering* of the *right* arm and leg, but not of the *left*. The movements, or spasms, of the arm and leg were, as well as could be determined, synchronous." Of course this could not be from the position of the *left* edge of the occiput, for it was in its proper place, and when the *right* edge was made to assume a like position, every abnormal symptom vanished instantly. Hence it originated from pressure by the *right* side of the occiput, expended on the *right* side of the medulla oblongata. Cases VIII. and XII. illustrate the same law.

I might dwell upon some other points that need further investigation, but in the absence of a sufficient number of facts, it would be a waste of time.

It is not presumed that I have explained everything in connection with this subject; far from it: much remains yet to be done. My observations are but a small beginning.

I have the history of several cases not included in my published papers. Of this disease, besides a long list of those denominated trismoid, twelve have been remedied simply by rectifying the displaced occiput.

I now leave the reader to judge how far the cases related will sustain the announcement made at the outset of this paper—"That trismus nascentium is a disease of *centric origin*, depending upon a mechanical pressure exerted on the medulla oblongata and its nerves; that this pressure is the result, most generally, of an *inward* displacement of the occipital bone, often very perceptible, but sometimes so *slight* as to be detected with difficulty; that this displaced condition of the occiput is one of the fixed physiological laws of the parturient state; that when it persists for any length of time after birth, it becomes a pathological condition, capable of producing all the symptoms of trismus nascentium, which are instantly relieved simply by rectifying this abnormal displacement, and thereby removing the pressure from the base of the brain."

REVIEWS.

Art. XIV.—*Elements of General Pathology: A Practical Treatise on the Causes, Forms, Symptoms, and Results of Disease.* By Alfred Stillé, M. D., Lecturer on Pathology and the Practice of Medicine, &c. Philadelphia, 1848: Lindsay & Blakiston. 12mo. pp. 483.

Both students and teachers have long felt the want of a treatise in our own language on General Pathology, as an aid and introduction to the study of Special Pathology,—something more complete than the few brief chapters devoted to this important and interesting subject in certain late works on practical medicine. A more copious work of reference for the definition of the terms and the description of the phenomena of disease was needed, than is afforded by medical dictionaries—in short, a work from which might be learned the absolute value and meaning of symptoms and phenomena in themselves, and thus furnish sound general notions of etiology, semeiology, and pathological changes. That the ideas of students are generally very obscure upon these subjects, is a source of annoyance, as well to themselves as to their teachers. They learn the names of things without any distinct idea of their meaning or causation; they hear a group of symptoms by name described as being present in a given disease, and regard each one as something belonging to the disease itself, because they have neither physiological nor pathological knowledge enough to know how these symptoms arise or what they indicate.

But it is not students only who may derive benefit from the study of general pathology, "comprising as it does within itself, the most unpretending elements and the most exalted philosophy of medicine." It is not to be regarded simply as the introduction, but as the complement to the study of disease. It is the result of the combined observation and matured judgment of the profession—an exposition, not of one man's experience, but of the ascertained laws and admitted facts of ages. Some of the highest problems of the science must necessarily be discussed in a treatise of this character, and no one is so advanced in the knowledge of his profession, that he may not, in a good treatise on this subject, find much food for information and reflection.

To fill up this void in our medical literature, three books have nearly simultaneously made their appearance: one, the excellent and classical treatise of Chomel; another, the admirable Principles of Medicine by Dr. Williams, both already noticed in this Journal; the third, the work of Dr. Stillé, whose title heads this article, and which, as the *original* production of an American author, we shall review somewhat in detail.

The work commences with an introductory essay on medical truth, its nature, sources, and means of attainment. This chapter cannot be too warmly recommended to the diligent perusal, and deep reflection, of young medical men. The author defines and describes the nature of revealed, intuitive, and demonstrative truth, but shows that medical truth differs from all of these. It is inductive, it is neither to be imagined nor guessed at, and in few cases can it be strictly demonstrated. "Its origin is not in the mind, but in external nature;" close and patient observation of facts, and experiment, furnish its only basis, and the analysis and coordination of these give us its laws. It is in the full spirit of this inductive or Baconian philosophy, so ably expounded by Dr. Bartlett in his *Treatise on the Philosophy of Medical Science*, that this work is conceived and executed; and happy will it be for the progress of the profession in this country, if our young men are early imbued with these doctrines, and taught to reason and study in this spirit. It is in this direction alone that medicine can make solid and reliable advances; and now that the ardour of progress, the active straining for novelty, and new discoveries in chemistry, physiology, and therapeutics, are weekly filling our medical journals with half-fledged theories, ingenious suggestions, and fanciful analogies—brilliant, and but too seductive to the warm imagination—it is more than ever necessary that this cautious, sure, and certain mode of philosophizing should be deeply impressed upon the minds of our young men, to discipline their reason, and show them the true limits within which our sicence may be successfully prosecuted.

This mode of study and reasoning has, at all times, been the only one by which the profession has really advanced. The works of those great masters of our art which have always commanded the respect and confidence of the profession, no matter what was the reigning medical doctrine—works which we now cite confidently as worthy of credence, and to whose streams of wisdom we cannot too often revert, have certain marked features in common. They are all works of observation, not of theory; works containing the evidences of diligent study of nature, not of fanciful reasoning; presenting us with clear descriptions of facts, not *à priori* enunciations of principles. They abound in the history of the origin, march, symptoms, and events of disease, not in formulas, recipes, and antidotes. The great principles of management are laid down in a simple, clear, and comprehensive manner. Regimen, hygiene, and attention to the efforts of nature to relieve herself, are insisted upon. They endeavour to sketch the general plan found most serviceable in treating a given class of diseases, and not to formulize a treatment for any individual case. They recommend simplicity and moderation in the use of drugs, but the closest attention to all surrounding circumstances, in the prevention, management, and convalescence of disease. Such are the striking characteristics of the works of Hippocrates, Galen, Aretæus, Baglivi, Sydenham, Hoffman, Huxham, Heberden, and others, whose names will be forever venerated, while those of the founders of sects, the champions of theories, the advocates of this or that exclusive system, or the confident discoverers of controlling remedies, have passed away with the dreams they promulgated. Their names, at most, are sometimes referred to as a warning to those who would venture on unsafe paths, allured by the specious promises of an ardent imagination, to seek a nearer road than the toilsome path which leads to truth. These views should be impressed upon the minds of young medical men. They must be taught that there is no royal road to medical science. Labour, study, patient investigation, a determined will to work, a sincere love of truth for truth's sake, are the only means to make a true physician.

The author advocates and illustrates the numerical method, as applied by M. Louis, and which he regards as one of the most efficient means of arriving at trustworthy conclusions, and the whole of this essay is a clear and forcible exposition of the tone of mind which pervades the whole treatise.

After a chapter devoted to some preliminary observations on General Pathology, the definition and nomenclature of diseases, we have the first part of the work very properly taken up with etiology. This important branch of General Pathology has of late years been greatly elucidated by the hygienic researches of medical men, and the steps taken by some governments, national and municipal, to improve the hygienic condition of large cities and manufactories, as well as by the copious statistical and registration reports, which have afforded an immense body of facts from which important conclusions have been numerically deduced. A more thorough and minute study of the causes of disease is imperative upon the well educated physician of the present day, if he would keep up with the progress of his science, whose spirit is to study the philosophy and natural history of disease. The scientific medical man who would fulfil his mission of benevolence to society, must not only know how to recognize and treat diseases, but how to prevent them by timely advice to the members of those families who are under his charge: as a philanthropist, his usefulness is greatly increased when he is enabled not only to exert this preventive care upon individuals, but upon society at large by diffusing his knowledge. We regret that Dr. Stillé has made this part of his book so strictly elementary, and that he has confined himself almost to simple definitions. Fearing to become hypothetical, he is almost barren, and lays down only those doctrines which are so commonly admitted as to allow of no discussion. What he says is for the most part wholly unobjectionable, but not full enough to be satisfactory.

The author says: "The word cause is used in two senses. In the one it signifies that invisible power and mysterious bond which connects two successive events; not the antecedent merely of an event, but its efficient antecedent, or that without which it could not have taken place. * * *

"The other sense of the word cause is the only one which here concerns us. It has been well defined as the antecedent, or concurrence of antecedents, upon which a phenomenon is unconditionally and invariably present."

"Unfortunately, there are perhaps no causes of disease which strictly fall within this definition, for there are none, except in two or three specific maladies, which are invariably and unconditionally present. Hence it becomes necessary to regard as causes, those which are present in the large majority of instances.

"Diseases arise under circumstances so wholly dissimilar, that different, and even opposite, causes must be assigned to the same affection. That is to say, different causes appear to produce identical results; but only appear to do so. Thus, diarrhœa may follow the application of cold to the surface of the body, or the presence of some irritating substance in the bowels, or an impression upon the mind. In each case the apparent cause of the disease is different, but beyond doubt, in each also the diarrhœa may have had some common antecedent; as, for example, the sudden plenitude of the blood-vessels of the alimentary canal. But so long as this common element remains undemonstrated, it is necessary that the nearest tangible antecedent of the disease should be viewed as its cause.

"The intensity of morbid causes, the circumstances under which they act, and the condition of the individuals subjected to them, are so infinitely various, as to render it quite impossible that any great uniformity should be found in their effects. The individual who, to-day, is proof against the infection of an epidemic malady, may, by the loss of a single night's rest, become its easy victim on the morrow. Of a large number of persons exposed to the same morbid influence, no two may be affected in precisely the same way. A certain degree of heat or cold, or stimulation of any kind, may not only be well supported, but enjoyed, and yet a very slight augmentation of the same action may give rise to violent or destructive disease. Examples of a like description might be multiplied, but these suffice to show that in etiology, as in other departments of medicine, there can be nothing more than an approximation to truth. It is impossible to predict with certainty, that a particular effect will result from the application of a given cause, and equally so to assert, which one out of all possible influences may have given rise to a particular case of disease, unless those immediately antecedent to the attack be minutely detailed.

"If, then, some portions of the ensuing remarks should appear to be vague, and less precise than the practitioner desires, let it not be forgotten that the subject is one whose propositions admit only a low degree of probability, and that this amount of proof has been still farther lessened by the very negligent and superficial manner in which medical observers have generally been content to inquire into the causes of the affections submitted to their treatment. Daily observation proves that no error is more common amongst the vulgar, than the attribution of effects to wrong causes, and that in fact, one-half of the grossest of popular superstitions spring from this source. It is no more than was to be looked for, that physicians who relied upon the testimony of their patients for ascertaining the causes of disease, should adopt, and by their writings perpetuate, the mistakes of the ignorant. The human mind instinctively demands a cause for every event, and in its eagerness to be satisfied, as readily adopts the apparent as the real explanation."—pp. 61, 62.

All this is very well, and very true, but still is no good reason why, even at the expense of a little vagueness, the inquiring student should not be taught a little more of the physiological and pathological action of such common producing causes of disease as heat, cold, moisture and dietetics, than the author has chosen to give us. Without speculating as boldly as Liebig, or asserting as confidently as Williams, even within the limits of philosophizing he has laid down for himself, he might have given a little more definite aid and information to students, who unfortunately do not always reason very logically, and sometimes not at all, upon these and similar subjects, but who are apt to be just as empirical, and to do more harm by their use and abuse of these mighty agents than in any other way.

The following paragraphs we think important enough to transcribe:

"The countries of Europe which are generally said to enjoy a temperate climate, are situated between 45° and 63° of northern latitude. Within these limits, as has been stated, the human race acquires its most perfect physical development, and all that it does is marked by energy. And so of its diseases. They are for the most part sthenic; characterized by powerful reaction, and the inflammatory type, they tolerate decidedly antiphlogistic treatment, and that not unfrequently even when they prevail epidemically. Affections of the lungs and heart, with rheumatism, are more prevalent in these than in other countries. In America the limits of the temperate region must be included between other degrees of latitude. Its southern boundary should perhaps be placed about the latitude 39° on the eastern side of the Alleghanies; and, west of the mountains, on the lower boundary of Tennessee in latitude 35°. In all of this extent, inflammatory affections prevail; nor can it be otherwise, since the vicissitudes of temperature are greater there than in any other part of Christendom. The difference between the mean temperature of the hottest and coldest months in the year, is 45° F. at Philadelphia, while it is but 31° F. at Paris.

"The extreme heat and cold of the climate of so large a portion of the United States, have probably some tendency to enervate the inhabitants, by exhausting their strength during the summer months, and habituating them to the close air of overheated rooms during the winter. The prevalent custom in our large cities, of warming houses with hot air, may, like putting plants in a conservatory, prolong the lives and increase the comforts of the delicate and sickly, but it can have no other influence on those of good constitution than to render them effeminate, and subject to all the maladies incident to a climate not only capricious, but violent in its caprices."—p. 68.

We fear that many of our modern comforts are purchased at the usual high rate paid for luxurious indulgences, weak and broken health. The close, dry, heated air of anthracite fires, the double windows, the noxious fumes of gas, now so generally introduced in city dwellings, the precautions taken almost against the possibility of ventilation, are bad substitutes for the open wood fire, and the less artificially constructed houses of the olden time.

Our author's observations on age, sex, constitution, temperament, idiosyncrasy, &c., are all sound, but obnoxious to the objection we have already stated, that he is too brief. In every case of disease, there is not only the essential element of the disease, but also an individual or personal element impressing its peculiarities upon its march, symptoms and treatment. Now these individual elements as derived from age, sex, temperament and constitution, are but referred to and little insisted on in our practical treatises. The young medical man has but a dim perception of their importance, and naturally would refer to a work of general pathology for some full information on this head. It is a serious want at present to have the state of medical science clearly stated and systematized on this subject. In the rigid study of the exact phenomena of disease, and search after the relation between symptoms and lesions, the disease itself assumes often too much of the observer's attention as being the only thing worthy of it, while the patient's system, and its powers of influencing and modifying the march of the malady, are in danger of being overlooked. Clinical instruction and experience afford the best opportunity of acquiring this kind of knowledge, but this is not always obtainable by students, and we know of no modern book to which we can refer them for satisfactory and copious information.

The best chapter in this section of the work is that on the specific causes of disease; it is eminently clear and philosophical, divested of the technicalities and hair-splitting distinctions which often confuse beginners, as to the distinction between infectious and contagious diseases, presents fairly the present state of our knowledge upon these subjects, and is more full and elaborate than the preceding ones.

In the second part of the work, we have discussed the general phenomena, theory, and classification of diseases, general diagnosis and prognosis. The whole of this portion of the book is well written, and deserves the highest commendation, not only for the lucid and satisfactory manner in which the different subjects are defined, but for the sound philosophy which pervades it. We particularly recommend the chapters on diagnosis and prognosis to the thoughtful perusal of the young practitioner, as being replete with invaluable hints and directions. Dr. Stillé well says, in speaking of the qualities of a medical observer—

> "Strange as it may seem, the fact is perfectly demonstrable, that good observers are quite as rare as good reasoners. In science, as in religion, there are many 'who having eyes, see not, and having ears, hear not.' From the beginning of time to the present day, the same material phenomena have been presented to the senses, but in medicine, with comparatively little profit, until a recent date. This stationary, or even retrograde, condition of medicine is attributable, as was explained in the Introductory Essay, to erroneous views entertained respecting science in general, and particularly medical science. An inferior value has been attached to observation, as a means of discovering truth; and consequently, the partial observations actually made, were generally conducted without method, and in a spirit wholly opposed to sound philosophy. It was reserved to modern times to lay anew, and with imperishable materials, the foundations of medical science; and if the labourers in this work have frequently employed the stones belonging to the old edifice, they have dressed them over again,—laid them with a more accurate line and rule, and united them with a far stronger cement."—p. 163.

The directions for investigating a case of disease, and the mode of recording and generalizing medical cases, as laid down by our author, are admirable, and described so plainly and minutely, that they may be safely taken as a model by whoever wishes to train himself as an observer. Educated himself under the lessons of M. Louis, that prince of observers, Dr. Stillé has drunk deeply of his method and spirit, which he has developed in these chapters with such clearness and comprehensiveness as to enable all who will, to comprehend and follow. The description of the different modes of physical examination which follows, is equally full and explicit, and contains much valuable information of a practical kind. In speaking of auscultatory percussion, as recommended in 1840, by Drs. Cammann and Clarke, of New York, Dr. Stillé says,—"We were lately assured by one of its inventors, that it continues to be practised by them with success; but it does not appear to have been extensively employed as a means of physical diagnosis, because simple percussion has been found so generally sufficient, that pains have not been taken to test the value of the proposed substitute." The neglect of this valuable means of diagnosis, which does so much credit to native research, is unfortunately too true; but surely it is not because simple percussion is a sufficient substitute. It is as much the complement of mediate percussion, as this latter is of direct: it extends and widens the field of its application; gives to it, in many cases, a precision that it alone is insusceptible of, and may be applied successfully in many others of differential diagnosis, where ordinary percussion is wholly insufficient. During the last eight years, we have been in the habit of constantly resorting to this method, in a large hospital practice, with the most satisfactory results; estimating the size of the heart, even when covered with the borders of an emphysematous lung; determining the line of separation between two solid organs, pressing against one another—as, for instance, a scirrhous tumour of the stomach pressing against an enlarged liver;—a large cancerous kidney adherent to, and continuous with, the lower edge of the liver, so that from the palpitation of the abdomen, the tumour had been taken for one occupying the liver, but where the error was at once detected, by using this mode of percussion. The most frequent and useful application of this mode of exploration is in compound fractures of the bones, where applying the stethoscope on one part of the bone, and percussing along its shaft, the exact point and direction of the fracture at once becomes evident the moment the finger reaches the seat of the lesion of continuity. This is done without inflicting pain on the patient, by handling the limb to ascertain the presence of crepitation, or subjecting him to the chances of increased inflammation, from laceration of the parts by the spiculæ of bones. A little practice will soon enable any one, whose ear has been already educated to appreciate the phenomena of auscultation, to avail himself of this valuable addition to our means of diagnosis, which seems not to be recognized on the other side of the Atlantic, and to be but little esteemed here because it has not a foreign descent to give it some *prestige*.

The third, and most bulky portion of the work, is devoted to semeiology; and here, perhaps, our author is seen to the greatest advantage, for this division of his treatise is not only very full and complete, but the characteristics of both his mind and style being precision and accuracy, his definitions and explanations are so lucid, that they leave little to be desired. They are, moreover, mingled with so little hypothetical explanation, that they are on this account particularly adapted to the student, who wants, as his elementary foundation, what is known and established, because he is not yet prepared, either from knowledge or observation, to judge for himself of the probable truth of the ingenious suggestions and plausible explanations with which these subjects are often decorated. Our author's distinction between signs and symptoms—a distinction puzzling to many beginners—may serve as an illustration of the precision we speak of.

> "Semeiology is that part of pathology which treats of the *signs* of disease. It differs from symptomatology, which treats only of *symptoms* in the abstract. The terms sign and symptom are very commonly, but erroneously, employed by medical writers as synonymous. This leads, as do most other inaccuracies of language, to a misconception of things, to confounding together an actual phenomenon and an operation of the mind, and presents a clear apprehension of the place which symptoms should occupy in the investigation of disease. Before entering, therefore, upon the department of semeiology, it is proper that the meaning of the terms just mentioned should be strictly defined.
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> The phenomena of disease are symptoms. All that instructs us in regard to what is hidden or obscure, in the past, present, or future state of a disease, is a sign. *Signum est id quo cognito alterius ignoti notitiam inducit*, is the definition of Galen. Hence, every symptom may become a sign, but every sign is not a symptom. A quarter-dollar may be described by enumerating its colour, specific gravity, &c.; these, its qualities, are to it, what symptoms are to a disease. But if the white colour and weight of the coin be employed to distinguish it from a half-eagle, which it resembles in form and impression, and its value in cents is declared as indicating what it will bring, the colour, weight, and numerary value become so many signs; diagnostic signs distinguishing the piece of money from another one, prognostic signs determining how much food or other commodity a tradesman will give in exchange for it. Symptoms, therefore, are converted into signs by the mental act of the observer. A patient may be more familiar with the symptoms of his complaint than the physician: he is unable to learn what they signify. This it is the physician's province to do, and this he must do, as a preliminary step to any rational judgment in regard to the nature of the disease, or the treatment which it calls for."—p. 214.
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> "Again, it is customary to speak of functional phenomena only as symptoms, and of those revealed by physical exploration as signs, as if the latter were *par excellence* significant. Besides being, as already shown, an abuse of language, such a phraseology is founded on a purely arbitrary division. For it surely constitutes no essential difference between two phenomena, that one is perceived by the sense of hearing and the other by that of sight. A pulmonary rhonchus is appreciated by the senses neither more nor less than paleness or emaciation. No one denies that the character of the pulse is a symptom, yet this is quite as much a physical phenomenon as the dullness of the chest in pleurisy; and it is perceived by the very same sense, that of touch, which measures the size, and estimates the consistence of an abdominal tumour. The only difference is that the last two phenomena are supposed to require a more careful, prolonged, and difficult examination than the first."—p. 215.

Nearly one hundred pages are taken up with an admirable description of the signs furnished by the circulatory and respiratory apparatus, giving ample evidence that the author is deeply versed in the use of these invaluable means of diagnosis, which form one of the greatest achievements of modern medicine. His description of these signs is at once so full and clear as to make it all sufficient as a text-book on these subjects. We next have a novel explanation of the cause of the impulse of the heart, which is dwelt upon at some length, and ably sustained by an array of both physiological experiments and pathological facts, which appear to us very satisfactory. This explanation enables us to account for a fact we recently observed, where there was very considerable hypertrophy of the ventricles, without any increased impulse. Similar absence of increased impulse we have met with before, but not having written down at the time the condition of the auricles, we cannot trust sufficiently to our memory to appeal to them.

This explanation differs from the generally received opinions upon this subject; and as we regard it a matter of great importance, we shall let the author speak for himself.

"What now gives rise to this impulse? The more generally received opinion is that of the party maintaining the diastole of the ventricle to be slow and gradual, and is that the impulse is due to the shock of the apex of the heart against the parietes of the thorax, during the systole of the ventricle, and to this cause alone. The doctrine which appears to be most strictly in accordance with facts is, that the cause of the impulse is the diastole of the ventricles, its force being proportioned to the power with which the auricle propels its contents into the ventricle. Independently of all experiment, it would be difficult to comprehend how the contraction of a hollow muscle could have any other effect than to diminish its volume, or that it could while contracting give a blow to a body external to itself. But vivisections of cold-blooded animals confirm the justice of this objection to the received doctrine. When the heart of a frog, which is transparent, is examined, the apex is seen to be thrust forward at the same instant that all the dimensions of the organ are enlarged, and its colour shows it to be distended with blood, while the apex is retracted simultaneously with the lessening of the size, and the disappearance of the colour of the heart. In other words, the projection of the apex corresponds with the diastole, and its retraction with the systole of the ventricle. Certain cases of malformation go to confirm this view. One such is reported by Cruveilhier, to this effect. A child was born with a deficiency in the upper part of the sternum, through which the heart projected. It lived nine hours. In this case the contraction of the auricles was exactly synchronous with the dilatation of the ventricles. During the ventricular systole, the heart contracted in *every* diameter, and no part of it was thrust forward except the apex, and that only with a slow, spiral motion. The ventricular diastole, on the other hand, 'had the rapidity and energy of an active movement triumphing over pressure made upon the organ, so that the hand closed upon it was opened with violence.' This movement was accompanied with a strongly marked projection of the heart downwards. The rapidity, energy, and direction of the ventricular diastole here observed, demonstrate this movement to be the cause of the cardiac impulse. Very similar phenomena were presented in an analogous case reported by Dr. Robinson, of Petersburg, Va., in 1833; and both cases, it is plain, are confirmatory of the results obtained by vivisections of cold-blooded animals. The combined evidence thus very summarily and imperfectly produced, warrants, it is believed, the conclusion, that actual inspection of the movements of the heart, when made under favourable circumstances, teaches that the *impulse is synchronous with, and caused by, the diastole of the ventricles.*

"There is another proof of the same proposition derived from considering what takes place in hypertrophy of the ventricles. It is commonly taught that hypertrophy of the heart is accompanied with augmented impulse. Laennec, Corvisart, and nearly every writer upon diseases of the heart, and upon the application of physical methods to their examination, affirm it; and Dr. Latham goes so far as to say that 'hypertrophy cannot exist without excess of impulse.' One would suppose that such uniformity of doctrine could only result from great clearness and constancy in the evidence of facts; that it was a legitimate induction from many well-observed cases of hypertrophy. And yet it is no more than a deduction from an imperfect theory; the testimony of observation is directly adverse to its truth. Indeed, several observers have pointed out the fact, without succeeding in explaining it, that the impulse is not always proportioned to the degree of hypertrophy. Thus, Dr. Pennock, in his valuable edition of Hope, says 'that hypertrophied hearts do not always beat with the force that might have been anticipated.' Dr. Corrigan of Dublin, in analyzing a number of cases of ventricular hypertrophy, declares that 'in all of them the impulse of the heart was *less* than natural, and in some could not be felt at all.' Andral asserts that 'the impulse is not necessarily increased in every case of hypertrophy; and that in some cases of concentric hypertrophy, there is no perceptible impulse.' Chomel in like manner informs us 'that patients are not unfrequently met with, in whom the heart has become uncommonly developed from hypertrophy and dilatation of its cavities, and yet without the energy of its impulse being increased, and even with a positive decrease of its normal force.' These citations might be multiplied, and confirmed by the analysis of cases of ventricular hypertrophy; but they suffice to show that if, as a general rule, increased development of the ventricle co-exists with an augmented impulse of the heart, this coincidence is far from being uniform.

"Now, from what does this discrepancy arise? How does it happen that hypertrophy of the ventricle is sometimes accompanied with diminished, and sometimes with augmented, impulse? It evidently cannot be explained upon the supposition that the impulse is due to the systole of the ventricle, and proportioned to the muscular power of its walls; and it must remain inexplicable so long as this theory of the impulse is adhered to. But if, laying theories aside, we compare any number of cases of cardiac hypertrophy, showing increased impulse, with another series in which the impulse is diminished, we arrive at a curious result, viz: that in every one of the former class of cases, there is *auricular* hypertrophy, either alone or in combination with a like state of the left ventricle; and that where the impulse is not augmented, or feebler than natural, there are either dilatation and thinning of the auricle, or the hypertrophy is altogether confined to the ventricle: in one word, we find that *permanently augmented impulse of the heart coincides with auricular hypertrophy.*

"A further confirmation of this proposition is derived from the following pathological fact. It is well known that, under several circumstances, the pulsations of the heart do not agree in number with those of the arteries: that two or three of the former may be felt for one of the latter. Now, if the impulse of the heart were owing to its systole, the cardiac and arterial pulses should coincide exactly, since the heart cannot contract without throwing some blood into the arteries, and producing a pulse in them: but as there may be several cardiac impulses felt, for one that is arterial, it is plain that the prevalent theory is at fault, while that which has been proposed in the foregoing remarks furnishes an adequate solution of the difficulty. The want of correspondence between the cardiac and arterial pulse is observed chiefly in two cases; first, when the heart is feeble; and secondly, when its mitral orifice is obstructed. In both cases a smaller quantity of blood than natural is at first thrown from the auricle into the ventricle, a quantity insufficient to distend the latter cavity, or to stimulate it to contract; at each contraction of the auricle, the ventricle is partially filled, and each time strikes against the ribs; but its own systole does not take place until its repletion is accomplished.

"If, then, it may be regarded as proven that there is a constant connection between augmented cardiac impulse and *auricular* hypertrophy, on the one hand, and between this hypertrophy and the energy of the ventricular diastole on the other,—and further, that the cardiac impulse is synchronous with the ventricular diastole—the conclusion is irresistible that *the impulse of the heart is caused by the diastole of the ventricle, and proportioned to the muscular power of the auricle.*"—pp. 319, 320-321.

The fourth, and last part of the work is devoted to general morbid anatomy, and exhibits the same amount of knowledge, research, and just discrimination on the part of the author that we have remarked elsewhere. He writes as one who has seen much, and is perfectly conversant with his subject in all its bearings. The directions in the second chapter on the mode of conducting post-mortem examinations, will be found invaluable by many who have not been in the habit of making such investigations. The author may well lament the almost total neglect of the subject of morbid anatomy in many of the principal schools of the United States. Many of these schools have no hospital attached to them to afford cases for examination. The bodies brought into the dissecting-rooms are used almost exclusively for the purposes of special anatomy, and very rarely can a history of the disease of which they died be obtained. The subject is taught as a distinct branch but in few. Bodies are occasionally "opened" in private practice, but for the most part by those who are so little conversant with morbid appearances, that they have little conception of what constitutes a healthy and what a diseased condition of the different tissues; who are unable to discriminate between the appearances which indicate inflammation, and those of simple hypostatic congestion. We have ourselves seen, within the last few years, a physician, having charge of a large hospital, open the abdomen in a case of fever, and from the simple inspection of the peritoneal face of the intestines, because they did not look particularly discolored, pronounce the alimentary canal perfectly healthy. Dr. Stillé too truly says:—

> "When these examinations are made, it is too commonly the fashion to proceed at once to the presumed seat of the disease, and having detected a supposed sufficient cause, to abandon further dissection as useless. It may safely be said, that, if anatomists in general had contented themselves with such superficial inquiries, the science of morbid anatomy would not yet exist, and that so long as it is thus slightingly prosecuted, we must be content to hold a very subordinate rank in the medical republic. The cultivation of this department demands unusual devotion, enthusiasm, and perseverance; private practitioners can do little more than contribute an occasional addition to its stores, which must be mainly enriched by physicians attached to public institutions. Even these, if they have not been taught by a competent instructor, must grope long in obscurity, seeing without understanding, and describing much erroneously or imperfectly, and be content, also, to devote many hours of severe and disgusting labour, to obtain a very moderate degree of proficiency."—p. 412.

This part of the book presents a compendious and admirable *résumé* of the different changes produced by disease in the normal constituents of the body, as well fluid as solid. The subject is well treated, presented with great clearness, and in such a form that the young aspirant for knowledge may readily gather from it enough of the important elements of morbid anatomy to go on and study special pathology with advantage. Speaking of the morbid changes of the blood, which are again of late years attracting so much attention, and assuming so prominent a place in the explanation of many diseased processes, the author admirably points out the wide difference between the modern and ancient humoral pathology.

> "It is not uncommon for writers of the present day to speak of the importance now attached to the morbid states of the animal fluids, as indicative of a return to the old humoral pathology; but, in doing so, they confound things essentially different. The humoral pathology adopted in the Hippocratic writings, and servilely followed in succeeding ages, was a pure hypothesis, which, as was stated in another place, assumed that the body was composed of four humours, whose various combinations produced diseases. These combinations were, at the commencement of the seventeenth century, estimated by Sanctorius at eighty thousand! In the last century or two, much indeed was said of the acridity and putridity of the blood, and some imperfect notices of the physical changes occurring in that fluid, were recorded. But there is little analogy between the views now entertained, concerning the influence of the blood in disease, and those speculative notions which ruled so long in medicine. The ancients not only imagined the humours, but also their qualities and effects. With inquirers of the present day, the subject is simply one of observation, experiment, and induction. If here and there a medical chemist, impelled by the force of genius, and elated by the wonderful results of his favourite science, overleaps the bounds of legitimate reasoning, and wanders in the trackless field of speculation, but few among the more eminent pathologists are tempted to follow his erratic course. The soundest thinkers receive his revelations with distrust. There is, in fact, a general unwillingness to adopt them as settled principles, until they have been tested by men of large experience in studying and treating disease; by men who regard the animal economy as something more than a machine, and the stomach as something different from a chemical retort; who recognize in it a vital chemistry, and vital dynamics, governed

by other laws than prevail amongst the instruments of the laboratory and the workshop."—p. 420.

We have thus briefly glanced at the contents of this treatise, destined by its author more particularly for the use of students, and we can most conscientiously recommend it as in every way deserving not only their attention, but also that of the profession at large. It is a real and valuable addition to our medical literature; conceived and executed in the best spirit of medical philosophy, inculcating facts that are known and proven, with scarce any admixture of doubtful hypothesis, and therefore a safe and proper book to place in the hands of a student. The larger work of Chomel which has lately been made available to the profession through the translation of Drs. Oliver and Morland is better adapted to the more advanced practitioner; while the *Principles of Medicine*, by Williams, with all its merit and originality, mixes up so much of speculation with facts, that its true value can be appreciated by him alone who has read and seen much for himself.

We are happy, also, to have it in our power to speak thus highly of an *original* American book. Of translations, republications, and compilations, we have an abundance; but it is with a prouder feeling that we receive a sterling native production like the present, and point to it as proof that our country contains sound and accomplished physicians, imbued with a true notion of the importance of their science, and competent to produce works which are really ornaments to medical literature.

ART. XV.—*Principles and Practice of Surgery.* By the late GEORGE M'CLELLAN, M. D. Edited by his son, JOHN H. B. M'CLELLAN, M. D. Philadelphia, 1848. 8vo. pp. 432.

IT is somewhat remarkable that, with our liberal supply of medical schools, our numerous corps of able teachers, our crowds of students in constant need of text-books, and our thousands of practitioners in daily need of books of reference, we are yet so deficient in systematic works, especially in the department of surgery, by the writers of our own country. America has produced many erudite, investigating, and practical surgeons; and our periodical literature alone, not to speak of detached essays, monographs, memoirs, and reports, is sufficient to show that, amongst us, surgery has been successfully cultivated as a science, as well as practiced as an art; and yet, up to the present moment, leaving out the valuable compends of Dorsey and of Gibson, we can point to no great and comprehensive exposition of the principles and practice of surgery by an American.

The work before us does not supply this deficiency. Its author may possibly have contemplated, with the view of some day fulfilling, this commendable undertaking. But his hand, alas! has been arrested! He has been suddenly cut off in the midst of his career. The present publication is but a fragment of what he had projected; and even this appears to have been left unfinished, and to have required shaping and retouching to prepare it for the press. His son, the editor, thus speaks of it:—

"As if forewarned by some undefinable impulse, that he might not be spared to carry out his entire object, he seemed bent upon hastily finishing what was meant to be the first volume, and its earlier pages were actually passing through the hands of the printer, whilst he was endeavouring to complete it. Suddenly cut off in the midst of these labours, the whole manuscript was left in much confusion, and many of the subjects in its latter part were incomplete. With little clue to his intentions, other than the knowledge of his opinions, derived from some years of daily practice and observation with him, I have endeavoured to complete all that was left unfinished, in strict accordance with his peculiar views. Preferring to leave everything as nearly as possible as it came from his hands, I have not felt myself justified in interfering with the distribution or division of the different subjects."—P. viii.

How far the printing of the work had progressed at the period of the author's death, and what has been the extent of editorial additions or alterations, we have not the means of knowing. The editor's initials are first met with at page 330; but he elsewhere informs us that he has affixed his own mark only to such of the notes as are not intimately connected with the text. And these, as he states, relate chiefly to important operations by the author, "which it seemed due to his professional memory should be mentioned," and which, with others still unpublished, he promises, at some future day, to furnish in detail. He is not without hope that, with these and "a vivid recollection" of his father's opinions, he shall be able "to carry out the work to the extent originally contemplated."

The opening sentence of the author's preface is in keeping with what we have often heard of his character and habits as a practical man. He comes to his point at once; and whatever we may think of its temper, we must, at least, allow that it is strongly tinctured with common sense. "I have always believed," says he, "that no inexperienced man ought to be suffered to write a book on medicine or surgery."—(p. ix.)

The spirit of the remark is just, though strongly in contrast with the usages and customs of our modern literary democracy. It expresses, too, more than we detect upon the face of it; and is not without wit. For it is, at once, a distinct announcement of the author's title to our attention; and an assurance that, in things pertaining to medicine and surgery, we are about to deal with one who can speak with some authority.

We have also heard it said, that "no one should presume to appear in print who has nothing new to communicate." There are, however, some good books which the profession would not willingly suppress, although written by men of but little personal experience. And there are others, not a few, equally good, the present among the number, which are made up, for the most part, of thoughts and opinions with which the profession had previously been sufficiently familiar, and which are as readily recognized and referred to their original sources as one could recognize an old acquaintance in a new association, or in a new dress.

While, then, we agree with the lamented author of the volume before us that "the world is already too full of useless publications, successively copied from one another," we are still disposed to leave literary exertion, like every other department of honest enterprise, to take its own course, believing that most of such publications are about as harmless as they are useless—that the publisher's announcement is usually the last that is heard of them—and that the principal, if not the only evil resulting from them, is their draught upon the pockets of those who are engaged in their production.

The field of surgery is, at the present day, an extensive one: no man can hope to be so familiar with it, or to explore it so thoroughly in every part, by his own unaided energies and opportunities, as to be in no need of calling upon others to aid him in describing it. The merits of a treatise on the principles and practice of surgery, then, consist not so much in attempts at originality as in a comprehensive and masterly exposition of so much of the general doctrines of medical philosophy as bear directly upon it; in a judicious, clear, full, exact, and orderly detail of the subjects embraced in it; and in an unbiased statement of the arguments, facts, and opinions upon which its most approved generalizations and practices are founded. The author's illustrations and manner of disposing of his materials, rather than the principles upon which he treats, should, as far as possible, be drawn from his own resources; his judgment should be sufficiently quickened and matured by experience to guard him against hastily adopting or rejecting the views of other men; his love of truth should be paramount to all other considerations; and he should be continually on the watch against prejudice, egotism, and hypothesis, both in advancing his own observations and in citing those of other individuals.

With these general views as to the merits of a treatise on surgery, we are not disposed to find fault with the author of the present work, that, in its production, he has not drawn exclusively upon himself. While treating on the disturbances of the nervous system, he, perhaps, could not have done better, in the present state of our knowledge, than to adopt the opinions of Dr. Marshall Hall. In speaking on inflammation he could hardly get on without referring to John Hunter, or to the followers and disciples of that great man, or even to the chemists and microscopists of the present day. We have nothing to complain of that, in treating on the venereal diseases, he has thought proper to adopt the general views of Mr. Carmichael, whatever we may think of these ourselves; and we are not certain that we should demur very loudly at the free use he has made of the Pathological Anatomy of Vögel, in the latter part of his book. But we are advocates of consistency, and do not clearly see why an author of great experience, who draws his opinions from the common stock of the profession, should denounce all writers of moderate experience who only do the same thing.

Dr. M'Clellan, indeed, appears to have had some scruples of this sort on his own account, and to have seen how much easier it is to lay down rules than to follow them. For, says he, "my present situation before the public is somewhat of an exception to my own rule."—(p. ix.) While shunning the character of a compiler, he is hardly prepared to appear as an originator; and, consequently, he is willing, from the start, to associate with the legion of reputable writers who modestly assure us that the position they assume is forced upon them, and not of their own choosing; and that they are compelled to appear in print either by the urgent solicitations of their friends, to whose judgment and wishes they are ever more ready to yield than to their own, or by the love and affection they bear to their pupils, or to those who have been their pupils, and who will no longer take "no" for a refusal.

> "I have now arrived at that period of life which I always thought entitled an educated and observing man to be heard; and my old friends and former pupils will give me no further indulgence in the way of resisting these demands. They all claim of me the published reports of my extemporaneous lectures, delivered years ago, during successive winters, in the Jefferson and Pennsylvania Colleges of this city. Some of my most attentive hearers have drawn up abstracts for me, and kindly threaten to print a volume of such matter if I do not gratify them by filling up the manuscript blanks with my own corrections and additions, as I can best recollect how they were originally delivered." "I have been obliged, there-

fore, to shut myself up occasionally from the world, at least for an hour or two at a time, and reproduce my former train of ideas and facts, as I was in the habit of giving them extemporaneously in the lecture-room."—p. ix–x.

The book, however, is not a book of lectures, nor prepared in lecture form. A very considerable portion of it—one-fourth, at least—could hardly have been delivered in the lecture-room at all, having been mostly made up for the occasion, and prepared, to use the author's own expression, "*currente calamo.*" "One idea," says he, "has necessarily grown upon the top of another, until I have in this manner rapidly accumulated the outlines of my views and experience on the principles and practice of surgery."—(p. x.)

The first peculiarity that attracts attention in the body of the work is a want of the customary subdivision of the principal subjects of discourse into chapters and smaller sections. The headings are but few, without numerical arrangement, and not always sufficiently clear to distinguish the main topics under consideration from the minor ones involved in them.

The first ninety pages are occupied in considering the immediate effects of injuries upon the system. In this the author treats, first, of disturbances of the nervous system, under the several heads of shock, reaction, constitutional irritation; and, secondly, of disturbances of the vascular system, in which he speaks of inflammation, with its various concomitants, complications, and consequences.

The next hundred and thirty pages are taken up with a series of special subjects—erysipelas, furunculus, anthrax, abscesses, ulcers, burns and scalds, the effects of cold, and wounds, with their complications, among which are included hemorrhage, tetanus, hydrophobia, and poisoned wounds.

The following seventy-eight pages are devoted to Venereal Diseases; and the remaining portion of the volume, about one hundred and twenty pages, is employed in the description of Morbid Growths, including Tumours and all other Morbid Deposits, benign and malignant.

It is not our object, on the present occasion, to attempt either a minute analysis, or critical examination of statements and opinions in the work before us; with nearly the whole of which the profession are already sufficiently familiar. We can notice only a few of the more prominent passages: and in our selection of these, we hope to be guided more by the desire of exhibiting the general merits of the book, than by any wish to hold up a few objectionable passages to criticism or comment. We are the more disposed to adopt this course from the consideration, that the work is, in part at least, a posthumous publication; and that in its present form it may be looked upon as much in the light of a memorial to be hereafter cherished by the professional friends and acquaintances of its author on his own account, as in the light of a contribution to the surgical literature of the day.

The immediate Effects of Injuries.—Dr. M'Clellan begins the consideration of this subject by intimating that surgical writers have hitherto dwelt on inflammation too much to the exclusion of other almost equally prominent circumstances. Every individual tissue, he remarks, has its peculiar mode of action, and presents its corresponding modifications of disease. "The lower orders of the animal creation, like vegetables, appear to be insusceptible to inflammatory processes," and the actions of the human frame can be greatly disturbed, independent of any of the stages of inflammation. "The more immediate effects of injuries, and all other influences which produce similar results upon the animal fabric," he infers, "are unquestionably communicated through the nervous system." (p. 13.)

With these opinions, particularly the last of them, we are not disposed to cavil. But we may remark, that the effects of injuries upon the nervous system have not been overlooked by previous writers; and that one important reason for their not having been hitherto satisfactorily illustrated, is owing to the very significant fact that we know so little about them. The true physiology, as well as the pathological actions and relations, of the nervous system, has yet to be explored. And, notwithstanding the jargon of learned words in which the subject has been of late involved, many of which appear to have been recently adopted from the geometricians, we are yet as much in the dark in respect to the functions of the nervous system, as our professional ancestors were, in the days of Galen, or at any other period prior to the times of Harvey and Servetus, in regard to the circulation of the blood.

How far the lower orders of the animal kingdom are insusceptible to inflammation, as intimated above, we are not prepared to say. We are not without some evidence that even in the vegetable kingdom something analogous to the reparative processes of real inflammation does now and then occur. The common leech does not range high in the animal kingdom; and yet we have ourselves watched it for weeks together, after an injury, manifesting many of the phenomena that are usually said to depend upon, or result from, inflammation; namely, rigidity, with loss of retractile power, swelling, discoloration, gangrene, sloughing, the line of demarkation, the ulcerative process, and final cicatrization.

Shock.—Dr. M'Clellan commences the consideration of this subject by an exposition of certain nervous actions and influences in accordance with the views of Marshall Hall. He then proceeds to speak of shock, as either partial or general. His account of these two varieties is succinct, and to the purpose; and the course of treatment which he points out for their management, is such as is generally adopted. We would add to his suggestions a word or two of caution against disturbing patients too much, especially in attempting to remove them in a hurry, or to a great distance, immediately after the receipt of severe injuries. Much harm is at times effected in this way, especially in cold and inclement weather. When the patient is at a distance from his home at the time of the accident, the rule should be, to place him under as comfortable circumstances as possible, at some place near by; in which he may have the benefit of seclusion, pure air, and proper attendance, until reaction is so far established as to admit of his safe removal either to his home, or to the infirmary at which he is to be subsequently treated.

The following passage we find in the form of a note. But the practical observer will recognize its truthfulness, and be, perhaps, disposed to give it as much consideration as if constituting a portion of the text.

> "It is a singular fact that more patients recover after reaction from a complete and overwhelming concussion of the whole nervous system immediately following an injury, than after some of the apparently more moderate forms of shock. When the syncope is not complete, the mind being conscious of impressions, although torpid and incoherent, and the pulse hurried and tremulous, with the respiration sighing, and the discharges involuntary, after a terrible injury, the forces are almost sure to run down in a very short time, without any subsequent effort at reaction. In some such cases the symptoms of disturbance are so slight at first as hardly to be appreciated, and as the forces are afterwards worn down by the actions consuming the excitability, a final condition of prostration super-

venes, which has been called secondary shock. I once saw a poor fellow, whose leg was crushed on one side up to the knee, and on the other up to the trochanter, and one arm also up to the middle of the humerus, by the wheels of a railroad train. He lost but very little blood, and did not sink into complete syncope for almost an hour after the occurrence, of which he died in about another hour. In the meantime he was possessed of mind enough to tell me of his birth-place in Germany, his friends and his property, and to express his wishes about messages to be sent to his home."—p. 16.

Under the head of *Insidious Shock*, Dr. M'Clellan speaks of a class of cases well worthy of special attention. We here also recognize the force of his description, though, on this point, he is in some respects rather rhetorical than exact.

"In some very severe cases of injury a peculiar kind of shock is given to the nervous system, which is too little known by our profession. The patient may be somewhat agitated and confused at first, but presently complains of little or nothing. He suffers no pain or inconvenience of any kind, and is hardly willing to have the attention of a surgeon directed to his wound. The pulse and respiration remain undisturbed; and the bystanders apprehend no danger from the appearances. Inexperienced medical attendants take no alarm, and perhaps every one prognosticates favourably. But the case looks altogether too well for one of such magnitude. A great joint has been torn open, a terrible compound fracture is present, or several of the large muscles and nerves have been lacerated, and yet no corresponding disturbance is manifested.* The skin continues cool and transpiring; the tongue clean; and the secretions natural. Such cases may be compared to those which occur in the outbreak of a yellow fever and other malignant epidemics. Patients will then be seen walking about, and perhaps attending to their regular duties, until the very moment when they drop down and die."—p. 17.

"The only symptom, in addition to the above detail of circumstances, upon which an intelligent surgeon can depend in the diagnosis of this kind of shock, is a semeiological one. The countenance of the patient is altogether unnatural. It presents an inquiring, anxious look about the forehead, eyes, and upper portions of the face, while all about the mouth and lips is smiling and composed. It resembles the mixed sad and cheerful expression which our great novelist, Dr. Bird, has attributed to Montezuma in his captivity, and by which some authors have attempted to characterize the whole of our aboriginal race—a melancholy smile about the lips, indicative of their fatal proclivity to destruction. There is another circumstance about the expression of the countenance, which will strike an intelligent observer. When you first approach the bedside, the patient will look up at you with a stare of alarm and suspicion; and he will repeat this expression constantly as often as you approach him to make any inquiry. No matter how long you remain in the room, whenever you attract his attention, his forehead will be drawn up, and his brows contracted into a scowl of suspicion, mingled with anxiety.

"If these patients do not always die, certainly every practitioner should be cautious in giving a favourable prognosis. The probability is, that not more than one in a hundred can possibly recover; and we may put down this as the most dangerous kind of shock."—pp. 18, 19.

The subject is further illustrated by the recital of a case. It appears to have been a favourite theme with our author; for, he again takes it up, with reference to cases, while treating on the subject of Wounds, considerably farther on in the volume.

Reaction.—After alluding to that mild degree of reaction which, in healthy constitutions, and after injuries of moderate severity, soon subsides without much active interference, our author proceeds to speak of reaction of a severer grade:

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* As Hunter observed—"*Nature requires to feel the injury.*"

"But after an interval of prostration from a shock, and especially, when any tissue or organ has been predisposed to disease from previous morbid or debilitating influences, injurious results are apt to follow the reaction. The sudden increase of excitement throws the blood, and perhaps the principle of innervation, too severely upon the debilitated parts. Vascular engorgement, vital, or functional disturbance, irritation, and finally inflammation, may all successively arise from this cause.

"There is another circumstance which should be adverted to in our speculations upon this point. During the stage of torpor or depression from a shock, the power of being acted on by stimulants (the excitability of Brown) is increased often to a morbid degree; so that the influence even of the natural stimuli of life becomes subsequently the cause of diseased excitement. This latter condition, indeed, constitutes the very essence of local irritation, and also of morbid irritability, which latter condition becomes the foundation of what modern surgeons have so much dreaded under the name of constitutional irritation.

"In our management of cases of reaction, it is obvious that care should be taken not to allow the procedure to run too high, or continue for too long a period. Direct depletion, however, can rarely be necessary, except in very full habits, and during very violent excitement. There is always some risk of sudden depletion being followed by a repetition of the prostration, or with what we shall subsequently have occasion to notice under the head of irritative excitement dependent on loss of power to sustain itself. In general, sponging with cool water, fresh air, and a moderate elevation of the head, will sufficiently subdue the excitement following reactions of every kind."—pp. 19, 20.

Irritation.—This term, as employed in pathology, has always been sufficiently vague. We cannot find fault with our author for not having succeeded better than his predecessors, in furnishing us with a clear account of what is meant by it.

"It is generally believed by the profession that irritation consists, in all these cases, in a mere derangement of the principle of innervation, totally unaccompanied by vascular excitement. It must be conceded, however, that the ingress of blood into the vessels of a morbidly irritable part, is one of the means of rousing this irritability into action. The natural excitability being altered as well as increased after the reaction from an injury, all the ordinary excitants, even of health, become productive of diseased actions."

"Irritation occurs before the access of inflammation, and may continue for a long period totally uncomplicated with it. If vascular turgescence, however, be allowed to arise in the same part, and continue there, that morbid condition of the blood-vessels which is termed inflammation will certainly be developed. The irritation does not terminate at the access of inflammation following under such circumstances; but the degree in which it is complicated with the inflammation, modifies the character and violence of the latter disease accordingly."—p. 23.

The phenomena of irritation must vary with the peculiarities of the structure and function of the parts, or organs involved in it. And in order to consider these modifications in the phenomena of irritation, our author proceeds to speak of them at considerable length, under the several heads of Irritation of the Brain, Irritation of the Urinary Organs, of the Stomach, of the Liver, of the Heart; and, finally, of Irritation of the Nerves, as affecting the body generally.

He is not disposed to believe with Cullen and others, "that the irritation which produces spasm of any kind, must be founded on debility. Spasm," he observes, "may occur in strong as well as in weak muscles—in vigorous and plethoric, as well as in weak and emaciated persons; and, in many respects, they may be associated under the same considerations as pain. Pain, indeed, has been pronounced to be a spasm of a sensitive part. It is the evidence of an irritation in one of the nerves of common sensibility; while spasm is indicative of a similar irritation in one of the muscular nerves of the spine. Irritations of the nerves of special sense," he continues, "do not produce pain, but simply disturbance of function; and so also of the nerves of the whole sympathetic system."

> "When a plethoric or active state of the circulation exists in company with a flushed countenance and warm skin, antiphlogistic remedies, in some shape, will always be proper, at least as preliminary treatment, for each kind of these irritations. When the face is pale, and the skin is cool, and the circulation not excited, opiates or narcotics of some kind are always resorted to by the profession, and sometimes in enormous doses, for both conditions. In both it is equally necessary to obviate all the causes of irritation in every part of the system. Emetics and purgatives are resorted to for the purpose of relieving the injurious influences of deranged *primæ viæ;* and attention to the state of the bladder, of the heart, and of the brain, is enforced whenever their condition may be supposed to influence either pains or spasms.
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> "These affections may be further compared in various respects. They equally tend to the destruction of life, when developed to excess. Extreme pain or spasm will abolish the vital forces, either by operating with sudden intensity, as secondary causes of shock, or by exhausting them from frequent repetition. In milder degrees they indicate more or less favourable results, according to the circumstances under which they occur. We apprehend no danger from them when accompanying reaction to a moderate extent, or when the system is not sinking from other causes. We can always obviate such conditions by anodynes, if the measures which we have resorted to for relieving the other causes of disturbance do not immediately succeed. In cases where there is no pain or spasm, under circumstances where these ought to occur, we have equal reason to fear that the system is not able to resent the effects of the injury. If the relaxing effects of undue hemorrhage have not been the cause of this, we of course apprehend all the dangers of an insidious shock."—p. 35.

Passing on from Injuries of the Nervous Apparatus, our author next speaks of the *Effects of Injuries upon the Blood-vessels*, or, in other words, of

Inflammation.—In this connection we have a sufficiently clear account of the general doctrines and phenomena of Inflammation,—of Redness, Heat, Swelling, and Pain; of the Extension of Inflammation, Inflammatory changes of the Blood, Inflammatory Fever and its Treatment, Suppuration, Ulceration, Granulation, Cicatrization, Hectic Fever, Irritative Fever, and Mortification. Our author is quite at home on these topics; which, however, furnish little, or nothing, upon which we can at present afford to dwell. That experience of which he has spoken in his preface, has, we fear, had not much to do in helping him to his remarks on *microscopic inspection of the blood* as a means of aiding us in practice, as well as in the diagnosis of diseases.

> "This disposition to a more speedy and easy separation of the colouring and fibrinous principles of the blood in inflammations, is evinced in small quantities as well as in masses. If a very thin stratum is allowed to flow over a piece of glass, the globules of inflamed blood will be seen immediately to aggregate themselves into clusters, leaving the intervals and edges pale and evidently composed of colourless fibrin and serum intermixed. The smallest drop of the same kind of blood, when placed in the field of a microscope, will, in the same manner, show an instant separation of the red globules from the liquor sanguinis, piling them up into columns like counted coin, with interspaces filled by the colourless globules and serum. We can easily, therefore, avoid the hazard of general blood-letting in doubtful cases; and decide whether inflammation exists or not by extracting a single drop of blood from the patient."—p. 49.

The following passage on the *power of the body, under certain forms of disease, to bear with advantage enormous doses of special remedies*, is drawn from observation. But we are not to infer that the remedies thus spoken of, are ever to be employed so freely as our author's words might seem to justify.

> "It is an admirable provision in the natural laws that qualifies most of the organs to bear the influence of such remedies as are calculated to remove their respective diseases. Thus, the nervous system, when afflicted with painful or spasmodic diseases, will tolerate much larger quantities of opium and other narcotics than in health. From sixty to one hundred grains of solid opium have often been given in a day for colica pictonum, and in tetanus, without producing any stupor, or other narcotic effect; the whole influence of the remedy being exhausted in overcoming the disease. Enormous quantities of stimuli are given, on the same principle, in some of the prostrate states of the system from diseases, without producing anything but a salutary effect; and prodigious doses of antimonials are tolerated in inflammations of the chest. In painful retentions of urine, and in strangulated hernias, a strong decoction of tobacco has been successfully injected into the rectum, without exciting either nausea or prostration; and in several forms of syphilis, mercurials can be given to almost any extent, without leaving behind any injurious effect."—p. 55.

Dr. M'Clellan is eloquent in the praise of *nitrate of silver* as a remedy for overcoming many of the local forms of inflammation. In most of his remarks upon this useful agent, we are ready to coincide with him. But on some points he has, here again, we fear, ventured to speak more strongly in its praises than his experience would have justified. We know something of the use of nitrate of silver in the treatment of purulent ophthalmia. But we here learn for the first time, that, in consequence of the use of this remedy alone, "it is now hardly possible to lose an eye from that once dreaded disease." (p. 62.)

Hunter versus Schwann, Henle et aliis.—In his account of granulations, our author, after stating some of the points of difference between the views of Hunter and those of the modern microscopists, proceeds to draw a lively comparison between the old and the new doctrines. We must endeavour to make room for it.

> "As physiology and pathology have both made a leap since the establishment of the cell-doctrine, it may not be altogether useless to institute a comparison between this new theory, more *in extenso*, and the long cherished hypothesis of Hunter. It will at least prove satisfactory to know how far the progress of microscopic discovery has gone towards superseding the splendid conceptions of the great investigator of life.
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> "The parallel which we have drawn between the two favourite theories of granulation, may be extended through all the other phenomena of organization, both in health and disease. All that Hunter attributed to the formative power of this coagulating lymph of the blood, the microscopists now credit to the organizing influence of the cell-globules, or nucleated cells of the same blood. He supposed that the blood, when effused among the living parts in very small quantities at a time, by virtue of its coagulating lymph, formed within itself its own vessels, which, by anastomosing with the capillary orifices of the surrounding parts, attracted the circulation into its interstices, and thus, by their actions, built up a new or additional organization. When the pure lymph is effused among the living parts, the same explanation of its organization was advanced by him, and maintained by all his followers. The capillary vessels were supposed to be formed spontaneously, within the mass of lymph, by its own inherent powers; and not by any extension, like a vegetative growth, of the surrounding vessels into its substance.
>
> "It was a singular circumstance, that Sir Edward Home and Mr. Baer, in endeavouring to illustrate this doctrine of their great master, by proving how the vessels could be formed in fresh drawn blood under a microscope, should have almost anticipated the cell-doctrine itself. They observed what they thought to be numerous small particles or bubbles of fixed air arranging themselves by a

species of polarity in straight lines in a drop of fresh drawn blood. These appeared to form lateral openings into each other respectively, so as to constitute a series of capillary tubes, which, by opening a communication with surrounding vessels, might become blood-vessels themselves. Now where is the substantial difference between these observations and those of later microscopists? Were not the exceedingly small bubbles of air the same things under the microscope that are now regarded as formative cells or exudation corpuscles? It makes no difference as to the proper conclusion, whether we call them pale globules, whose outer surface shortly becomes covered with an epithelium, or nucleated cells, or de-nucleated red corpuscles, as others have done. The analogy appears still stronger when we recollect that all the cell advocates assert that they can distinguish these little corpuscles arranging themselves in straight lines, and opening into each other side by side, so as to become resolved into tubes. One might suppose that after having so satisfactorily explained the formation of blood-vessels, the framers of either hypothesis should have remained tranquil. Almost everything in the body can be done by the vessels. They are powerful to do. as well as to suffer. The disciples of Hunter attributed a full share of all the manifestations of life and disease, to the actions of the blood-vessels; and surgeons have always concerned themselves with the same agents, almost to the exclusion of other parts of the whole economy. But the enthusiastic advocates of the nucleated cells were determined not to remain stationary during the progress of discovery. By their microscopical researches, they have ascertained that the cell-globules, when conglomerated together, can convert themselves into cellular tissue, by forming lateral openings into each other in every direction, or by elongating themselves into caudated points in opposite directions. After consolidation into elongated shapes, they convert themselves into filaments and lamellæ, which, in connection with the cellular interstices, form the general mould or matrix of the whole body. Into the areola or meshes of this general text-work, the same all-creative cell-globules insinuate themselves, and form the parenchymatous substance of every elementary tissue of the entire organization. The epithelium of these little molecules, on being flattened down by desiccation on the surfaces, constitutes the cuticular covering of all the parts, including the hair and nails. Not content with this extensive physiological application of the cell-doctrine, its advocates have made it answer a still greater number of problems in pathology. If these corpuscles exist in too great a proportion, they must be productive of disease; if they are too scarce in the body, some equally distressing derangement occurs. If they are in any way badly or imperfectly constituted, or disorganized, some difficulty either in the functions or organization must be produced. From the use of the microscope, most of our recent authors appear to be able to detect in the form of globules floating in the blood the procreative elements of cancer, of fungoid tumours, and of scrofula. The entozoic and animalcular doctrines of the old surgeons have got quite out of vogue; and the nucleated and caudated cells are now placed in the chair of state by all our theorists. In the "Vestiges of Creation," we have been presented with a brilliant specimen of human genius in the way of extending this new doctrine to its ultimate limits. From the monad to a monarch everything is done by the action of the cells. The first cell-germ that was formed at the beginning of animated nature has been reproducing itself by an infinity of multiples ever since; and to account for all the diversified living forms that ever have existed, we have only to conceive that this multiplication has been at so many periods successively arrested in its different stages of development. The first stoppage of the process of cell multiplication would present an animal of a very low type of organization, possessed of a very small range of functions or powers. After this had gone on reproducing itself a few millions of times, until nature had got tired of its sameness, a leap would be made into a higher form of organization by the mere multiplication of the cells. By successive repetitions of this process, it is supposed gradually to have happened that all the races of animated nature have been finally created. Faculty after faculty has been added to former faculties of life, according to the rise in the complications of structure; until at last the powers of reasoning have been attained in connection with the cell-germ fabrication of a brain. The fœtus *in utero* is supposed to undergo a similar course of successive developments, except that the multiplication of its formative cells is at no period arrested until the final perfection

> of its form has been attained. We must, then, according to the doctrine, have passed during the first six months of uterine existence through all the forms and assumed all the types of the whole of our Pre-Adamic ancestry, from the earliest monad up to the first man himself.
>
> "But enough of this folly. The cell-doctrine has already been carried too far for the sober sense of practical surgeons. Let it remain as a plaything for the fancy builders in science. Allow the microscopists to pursue their own researches, and work out their favorite results. "The tools to him who can handle them." We will follow the investigation of plain and tangible things, which we can see with our own eyes, and manage with the hands which God has given to us. It will add no strength to the certainty of our knowledge to decide whether a small particle of lymph be in the shape of a globule or a cyst before it becomes the medium of organization. The archetypes of Plato were just as important to the Baconian philosophy as such matters are to the progress of modern surgery. The chemists have found out that it is not necessary to ascertain the mathematical shapes of the integral molecules of matter, in order to study their laws of arrangement and combination. So we can go on with our pathological inquiries on the broad foundation laid down by Hunter, without stopping to question whether the three primitive monads were cubes, or tetrahedrons, or spheres."—pp. 72–6.

Senile Gangrene.—While treating of gangrene, Dr. M'Clellan alludes to a set of cases "which," he thinks, "ought to be characterized, for the benefit of practitioners." His characteristics we recognize; but not his pathological reasonings upon them. He gives, in the form of notes, several cases, by way of illustration.

> "The cases to which allusion is here now made, all present the peculiar phenomenon of the patient holding the affected member in a depending position. No matter how bad and inflamed the parts may be, the limb will be held downwards, and frequently it will be impossible to prevent the sufferer from exposing it to the full blaze of a fire. It would appear as if the obstructed state of the arteries leading to the affected member, or their impaired condition of vitality, prevented the free access of blood to the limb, and, therefore, required the aid of gravity and of warmth to prevent the necessary access of blood into the capillaries. The minuter vessels and their controlling nerves being called on to make increased efforts to pump, as it were, the circulation through enfeebled arteries, necessarily generate the accompanying pain and irritative inflammation. The increased pressure of the column of blood from above, under the force of gravity, relieves them from the necessity of making such extraordinary efforts, comforts the irritated and exhausted nerves, and explains the advantages of a dependent position of the limb. The influence of warmth in some cases, and of internal carminative and diffusible stimuli, can also be satisfactorily explained on the same principle."—pp. 95–97.

We can refer to instances that have fallen under our own care, of senile or dry gangrene, corresponding, as we believe, to those to which our author here alludes; but so far as we remember, all connected with some embarrassment in the general circulation, as valvular disease of the heart, atheromatous deposits in the coats of the larger vessels, or thoracic effusions; or with some other source of constitutional disturbance, which, independent of the state of the affected limb, was of itself sufficient to prevent the patient from assuming the horizontal position. In referring to the cases which our author gives in evidence of what he considers this peculiar form of gangrene, we find that this was also clearly associated with one or another of these forms of constitutional disturbance.

In perhaps a majority of cases of senile gangrene, there is an evident degree of insensibility to acute suffering in the affected limb, and hence, when a patient is much incommoded by a sitting or recumbent posture, he will put his affected foot to the ground, and even walk about, with as little apparent suffering from it as if it were entirely sound. We have at this moment under care a gentleman, about eighty-seven years of age, with gangrenous inflammation of one of his great toes, in connection with paralysis of the bladder. While the bladder is comparatively empty, he will keep his foot elevated without complaining; but as soon as the bladder begins to be somewhat distended, no persuasion can prevent him from pacing about his apartments, urging as a reason for so doing, that, "when a man is suffering, he must seek such posture as gives him least uneasiness."

The following statement in regard to the place of election for amputating after the arrest of senile gangrene, may occasionally be proper; but we do not believe it to be in accordance with general usage; and our own experience is, in some measure, opposed to it.

> "After the complete arrest of senile gangrene, amputation may be completed at the line of separation, in most cases, with great benefit and comfort to the patient, but it can never be performed with safety through the sound parts above. The results of the trials made in the common way in this country, have been almost uniformly unsuccessful. If the patient stands under the shock of the operation, he almost invariably sinks in a few days or weeks from exhaustion, and that, too, without cicatrization of the stump."—p. 98.

Without resorting to written authority on this question, some of which Dr. M'Clellan undertakes to refute, we can remember at this moment at least one case which occurred seven years ago, in a man between seventy and eighty years of age, whose leg was amputated, on account of gangrene of his foot, at some inches above the line of demarkation, with complete success, the stump healing over as kindly as if the patient had, at the time, been of vigorous constitution, and of middle age. We hold to no absolute rule either for or against surgical interference, in the gangrene of old people, after the line of demarkation has been fairly formed. In a class of cases the causes of which may be so various, the surgeon must be guided by the circumstances peculiar to each individual, as to where or when to operate.

Erysipelas.—Hitherto, as we have seen, our author has been dwelling on the immediate effects of injuries; but with incidental allusion to other subjects that are naturally associated with inflammation. He next proceeds to speak of erysipelas. This he divides into simple, phlegmonous, hospital and gangrenous; and under the same head he treats of erysipelatous inflammation of the mucous and serous surfaces. His account of erysipelas, occupying about twenty pages, is, on the whole, satisfactory. We would perhaps have added a few remarks on some of its complications, and the treatment required by these; as for example, cerebral and other visceral affections, œdema glottidis, and suppuration of some of the larger joints from the extension of the disease to their synovial surfaces. Numerous and severe cases of diseases of the joints, some of them requiring amputation, the direct result of the extension of erysipelas from the superficial tissues surrounding them, have lately fallen under our own notice. The joints that we have seen thus attacked, have been the ankle, the knee, the wrist and elbow. In the instances calling for amputation, we have found, that, after the period of a very few weeks, the synovial tissues, as well as the articular cartilages, have been completely destroyed; but hitherto we have found the bare surfaces of the bone quite smooth, and free from caries or interstitial softening. We are not aware, without, indeed, having made much inquiry on the subject, that diseases of the joints are usually spoken of among the complications or results of erysipelas. The cases to which we refer, however, have all fallen under our own notice within the past two years.

The rules laid down by Dr. M'Clellan for the treatment of erysipelas, are such as are commonly observed by the profession in this country, with the exception, perhaps, of his advice to resort early and freely to the use of the lancet, in the phlegmonous form of this disease. Blood-letting may, doubtless, be occasionally demanded both freely and at an early stage, in some cases. But as a general rule, the tendency of the disease to show itself in persons previously of a broken constitution, and to assume a typhoid form even from the first, should put us upon our guard against very active depressing modes of treatment. In the management of this disease, as it shows itself in hospital practice, it has long been observed, that, after attending to the secretions, and giving free exit to purulent effusions, a supporting and tonic course is usually called for.

The following remarks on the impropriety of resorting to blisters, with the view of checking phlegmonous erysipelas, are worthy of attention:

> "The skin being not only over-excited, but greatly weakened by the destruction of the subcutaneous supply of vessels, is easily injured by a severe stimulus. The application of a blister, or of any other irritant, is then readily followed by sphacelation. Mild and soothing emollients must, instead of such applications, be resorted to, and free incisions made to discharge the offending purulent matter. The dead cellular tissue will afterwards float out with the sanies, in sloughs, like flakes of tow. By moderate and equable bandaging, it will then be possible to cause an adhesion between the under surface of the detached skin, and the lining surfaces below, and thus preserve its vitality."—pp. 109–10.

The author's picture of *gangrenous erysipelas*, or at least of a variety of this disease, which appears to be peculiar to rural districts, is not familiar to us. It is strongly drawn.

> "During the harvest season of our northern latitudes, sporadic cases of this terrible malady sometimes occur among intemperate labourers who work from sunrise to sunset in the open air, and under an almost tropical sun. Stimulated by high daily wages, and the most pernicious kinds of alcoholic liquors, such men sometimes overtask their powers, and inflame their systems to the highest pitch of exasperation. The food which they consume at this season of the year is, moreover, especially unwholesome. It consists almost exclusively of badly cured salt meats, and heavy Indian corn bread, with the half decayed vegetables of the preceding year, combined with a harsh drink of fermented apple-juice, called cider, pickles, and a plenty of fresh milk. It naturally follows, that intemperance combined with such diet, and fatiguing exposure to an ardent sun for fourteen hours every day in succession, must tend to the production of the most dangerous state of constitutional irritability. Then the slightest prick or contusion will always be followed by a widely-diffused inflammation. But occasionally, an overwhelming and speedily fatal explosion of constitutional and local disturbance will supervene. A mower, who has a short time before struck his foot against the sharp point of a twig, or a reaper, who has merely scratched a finger with a stub of straw, will throw down his implement of labour, and scream with mortal agony. The injured member will suddenly tumefy, and present a glazy appearance with livid streaks, intermingled with green and yellow patches. Gangrenous vesicles will soon form, and a putrescent odour begin to exhale. The pulse will be feeble and tremulous, the skin cold, and the respiration hurried and moaning. The face will be contracted, or hippocratic; the breath putrid, the eyes glairy, and the epigastric region distressed with a sense of horrible oppression. In from twelve to twenty-four hours the poor wretch will die, with the limb enormously swollen, tense, and crackling, with all the appearances of a malignant erysipelas, terminating in gangrene. No treatment has ever been known to check the progress of this disease. The tumefaction and lividity will, in the meantime, have extended

up to the very trunk of the body, so as apparently to have invaded the vitals."—pp. 113–14.

Abscesses.—Passing over what is said on furuncle and on carbuncle, we next find our author treating on abscesses: and having already spoken of simple abscess under the head of Suppuration, he here goes on to describe diffuse, fetid, chronic, cold, lymphatic, and scrofulous abscess, and abscess by congestion. Under this head, we can make room only for his remarks on *lymphatic abscesses*, and the cases thereunto appended.

"It is very rarely, indeed, that a surgeon in extensive practice can meet with a decided effusion from a ruptured lymphatic, among the living parts. The constitution must always then be infirm, or the parts in a state of preternatural relaxation. The cases which most frequently occur, are those which result from unhealthy suppuration of the lymphatic ganglia, terminating in an ulcerative breach in some of the larger lymphatic trunks, and producing a more or less considerable effusion and distension. These are apt to remain fistulous after their discharge, and present a gentle lymphatic oozing for a long time.* Small lymphatic blebs or abscesses sometimes occur at the cicatrix after venesection at the bend of the arm, which evidently result from an unhealed puncture of a lymphatic vessel. They are very easily ruptured, however, by pressure, and continue to discharge the pure lymph *guttatim* for a season. The application of a pointed stick of pure lunar caustic, and subsequent pressure with graduated compresses, will speedily obliterate all such discharging orifices. Sometimes congenital fistulous orifices of the lymphatics appear in infancy, and continue for years, discharging occasional drops of pure lymph. These especially occur in the neck, along the course of the carotids, and may probably result from an incomplete closure of the lateral openings, found in that region during the earlier stages of fœtal development. The proper treatment is to excite obliteration of such orifices, by the application of a small red hot wire, or a pointed piece of solid caustic."†—pp. 127–28.

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* One case occurred to me about ten years ago, in the right arm of a young man just above the internal condyle, in the usual situation of the first brachial lymphatic ganglion. He had been afflicted with a small abscess there about four years before, which left a small fistulous opening, from which a frequent lymphatic oozing occurred. Another, precisely similar, since occurred in one of the forearms of a lady, over the upper third portion of the anterior interosseal space, and continued for several months after the partial closure of every small abscess there. In some rare instances, dissection has revealed a very small lymphatic ganglion in that space along the course of the central lymphatics of the forearm. But an abscess on the course of the larger lymphatic trunks will terminate in such orifices, as well as abscesses of the glands.

† Some years ago I was consulted for a case of this kind, in the person of a daughter of Capt. Campbell, of Pine street. She was then about seventeen years old, and rather pale and delicate in her appearance. A very small and almost imperceptible orifice existed in the skin, directly over the anterior margin of the sterno-mastoid, in the middle region of the neck. A common bristle could hardly be inserted into it, and it resembled very closely one of the empty cutaneous follicles. A very small drop of transparent lymph could almost always be seen over this orifice, and every few minutes it would trickle down like a tear. On rubbing the neck with a slight pressure, especially upwards, this discharge would be considerably augmented; and I took advantage of this to collect a few drops in a teaspoon. The fluid underwent an imperfect or flocculent coagulation, as I have found always to be the case on repeating Magendie's observations upon the lymph, when extracted from the vessels of living animals.

One of the children of a late Hon. Secretary of the Navy, was born with the same kind of lymphatic orifice in the same region of the neck. When I saw it, the child was about three years old, and the discharge of lymphatic fluid had continued at intervals up to that period, from his birth. As the child was then ill with fever, I did not venture to cauterize the orifice, but suggested the cure to the parents for the consideration of their family physician, in a remote State of the Union. That was about five years ago, and I have just met with an intimate friend of the family, who says that the stillicidium of watery fluid still continues down the neck, with occasional interruptions.

Wounds.—Ulcers, burns, and scalds, and the effects of cold, offer nothing to detain us. But the subject next in order it would be unfair to pass over entirely unnoticed. Under the head of Wounds, we have a detailed account of the varieties into which those are commonly divided, and some further observations on Shock. Next follow rather full accounts of hemorrhage and tetanus, after which the author speaks of poisoned wounds, hydrophobia, dissection wounds, and malignant Pustule. Most of these subjects are well disposed of. We can notice only a few of them.

Time for the Removal of Ligatures.—As a means for checking hemorrhage from vessels of any size, Dr. M'Clellan, in common with other practical surgeons, trusts mainly to the ligature. In this we agree with him; but not in his haste for its removal. The time which he assigns for withdrawing it is far too short: and we fear that whoever undertakes to remove a ligature from an artery of even moderate size, at the close of the period mentioned by him, or at any time short of it, will, sooner or later, have serious cause to repent of his rashness.

> "Although ligatures always prove somewhat irritating, and excite some degree of inflammation in their track, they can in general be brought away in *from one to four days*, by slight traction through the interspaces of the plasters, provided they have been properly applied around the mouth of the vessels alone. It is better practice to insure all the inconveniences of the ligatures, than to encounter the risk of exciting a greater degree of inflammation by the use of irritating styptics, for the purpose of arresting hemorrhage from large vessels."—p. 165.

Mode of applying Styptics.—The failure of styptics and astringents to check the loss of blood, is often owing to carelessness in the application of them. When pressure and astringents are to be employed as a means for the arrest of hemorrhage, the plan suggested below may be worthy of trial. The use of pressure over the vessel above the point of injury, during the application of the styptic agents, and for some time afterwards, is of great importance in rendering these efficacious.

> "In many cases of secondary hemorrhage, we can succeed perfectly well without resorting to any cutting operation. If we get an assistant to make firm compression upon the main trunk of the artery above, while we are clearing out the coagula, and searching for the bleeding orifice, we can apply well graduated compresses loaded with styptics upon it in such a firm manner as to ensure a subsequent obliteration of its cavity. A powder composed of equal parts of powdered galls, tannin, and gum Arabic, applied by means of moistened compresses of lint or sponge, and bound down firmly with a well-adjusted roller, while the pressure is still maintained on the trunk above by an assistant, will often succeed to our full satisfaction. The reason why graduated compresses and styptics do not oftener succeed in the hands of practitioners, is, that they attempt to make such local applications, while the blood is still flowing from the orifice. To make them perfectly effectual. they should keep up the compression over the main trunk above, for half an hour, at least, after the styptic has made its full impression upon the wounded orifice. By that time the coagulation and contraction will have become so fully perfected, as to resist the returning impetus of the circulation."—pp. 189-90.

Caution against disturbing Hemostatic Dressings.—Dressings for arresting hemorrhage should not be incautiously removed.

Dr. M'Clellan makes some judicious observations on this subject which we need not cite. The case which he gives of improper interference with his hemostatic dressings, is to the purpose; but we fear it has been overcoloured. We can hardly be persuaded that it is correctly reported. No hospital surgeon, we are satisfied, could jeopardize the life of a patient for the empty gratification of knowing how Dr. M. thought best to apply his dressings.

> "During the riots in Southwark, I dressed a horrid cannon-shot wound in the right groin of a young soldier from Germantown. He had been struck there with a broken piece of cast iron, with the fragments of which one of the cannon in the hands of the mob had been loaded. The whole fore part of the fleshy substance of the groin, in contact with Poupart's ligament, had been torn away, and a prodigious rent made across the artery, with a hole in the vein. He had flooded the floor, on which he lay, with gore, and was deadly faint when I arrived. It was late at night, and the rioters were all around. I, therefore, applied graduated compresses, and bound them down with a spica bandage. But it required two hours constant nursing, with his head and shoulders in my lap below the bedside, and the incessant use of cordials and brandy, to revive him. During his reaction the poor fellow was delirious, and wanted to go home. He had no return of hemorrhage, however, and by morning I got him so far recovered, as to have him transported in a carriage to one of the hospitals. There, however, somebody stripped off his bandage and pulled away the compresses, to see how I had dressed the wound! The blood gushed out in a torrent, and a second fainting process carried the patient off to a better world."—p. 115.

For checking Hemorrhage after Leech-bites.—To check the loss of blood from leech-bites is sometimes a troublesome task.

The common plan of resorting to caustic or a heated wire, our author rejects in favour of one which he holds to be quite as efficacious. The glazed surface of a piece of visiting card pressed firmly upon the orifice, he says, will answer the purpose. It possesses the advantages of giving no pain, and of leaving no scar.—(p. 199).

Tetanus.—We give below a rapid sketch of the distinctive features of the acute and chronic forms of tetanus, with an estimate of their comparative danger. The reader will not fail to notice the passing salute with which medical periodicals are honoured.

> "The first makes very rapid progress, is excessively painful, especially at the paroxysms, and extends in a very short time throughout the whole muscular system. This almost invariably proves fatal, and may be compared to hydrophobia in danger, which indeed it resembles in many other respects. The chronic forms of tetanus extend very slowly, and are sometimes even confined to the muscles of the jaw, or back of the neck, throughout the whole progress of the disease. The paroxysms are never so severe or distressing as in the acute tetanus, and the disease is altogether more amenable to treatment. Almost all the cases of cure which have ever been reported, even in the boastful and ill-digested periodicals, have been chronic. Acute tetanus generally proves fatal in about three days from its commencement. Cases, however, sometimes occur in which death takes place in a few hours, and one case of a negro in the West-Indies has been recorded when death followed in fifteen minutes from the attack. Chronic tetanus often lasts for fifteen or twenty days, and if the symptoms are not getting exasperated by that period, we may hope to restore the patient."—pp. 203–4.

The differences between acute and chronic tetanus have long been recognized. The danger of the disease is usually in proportion to the rapidity of its advent and diffusion throughout the system. We admit too that most of the instances of reputed cure, have been comparatively mild, or of the chronic form. But we do not admit that the acute form, even in its severer grades, is not now and then amenable to treatment. We happen to be among those unfortunate individuals who have reported "in the boastful and ill-digested periodicals," some severe but successful cases of acute traumatic tetanus; and we have since seen others of the same character that have been prevented from running down, and by active interference, happily supported, until the disease has had time to resolve itself by its own natural limitation. For we look upon this formidable disorder, after having closely studied it both at the bedside and in the dissecting room, as one unconnected with any morbid organic expression, and like many other purely functional disorders, in some degree self-limited. And we are led to believe that the danger of a fatal result during the progress of the disease, depends, for the most part, either on suffocation, from spasm of the glottis; on interrupted circulation of the blood, from irregular and sometimes spasmodic contraction of the heart; on the severity of the primary injuries that give rise to, and complicate, the constitutional disorder; or on general exhaustion from the prolonged and excessive excitement to which the whole frame is subjected, accelerated, in some cases, by inanition, and no doubt, in others, by injurious and heroic treatment. Although neither the force nor the rapidity of the disease appears to hold any relation to the severity of the primary injury, yet we have met with no cases of recovery where the primary injury was so severe as, of itself, to endanger life.

Dr. M'Clellan remarks that the acute form terminates fatally in about three days. He makes no estimate of the time in which it may terminate in recovery. From the cases that have fallen under our own notice, we are disposed to believe that the spasms begin to be mitigated about the seventh day. Patients that hold out to the end of the second week, usually recover. But the spasms yield only inch by inch: the parts first affected being those from which the spasms are first disposed to subside. They sometimes recur, however, with great severity as late as the third week, or afterwards, in parts which they appeared to have entirely left; and they often linger at one or two distinct points, as in the muscles of the foot, or of a single toe, for days after they have left every other part of the body.

We cannot go farther into our author's account of the symptoms of tetanus, than to allude to his remark upon the condition of the skin; which, he informs us, is often cold and torpid (p. 207). In the incipient stages, such may perhaps, sometimes, be the fact; but, as a general rule, after the spasms have fairly commenced, the skin is bathed in warm perspiration.

In respect to treatment, Dr. M'Clellan, after speaking of the various modes that have been adopted, is disposed to recommend large doses of solid opium, with an occasional cathartic of calomel in combination with croton-oil.

> "The great constitutional measures, however, to be relied on in the majority of cases, are to tranquilize the system by large and frequently repeated doses of opium, and the maintaining of the regular action of the bowels by a combination of calomel and croton-oil, or some other active cathartic of an eccoprotic character. Hydragogue cathartics are always improper, because they deplete the circulation too severely, and prostrate the vital powers. The frequent repetition of the calomel, along with the opium and other remedies, not only assists in maintaining the secretions, but tends, fortunately, in some cases, to produce a critical salivation. In all hot climates, mercurials are found to be especially serviceable, and many judicious practitioners employ it freely by external inunctions at the same time that they are using it internally. It is astonishing to witness the quantities of active medicines which patients afflicted with severe tetanus require, to produce any positive effects. The system always acquires a remarkable tolerance of remedies in this disease. From half an ounce to an ounce and a half of solid opium is said to have been given in a day for this disease, without producing any narcotic effect. In the same the strongest injections of tobacco are required, in order to overcome the muscular spasms, and then they hardly ever prostrate the system. The influence of such remedies appears to be altogether expended in overcoming the irritation of the disease."—p. 208–9.

We have, in many instances, seen opium liberally, nay, rashly administered, though never to the extent above stated. And we have known patients profoundly and alarmingly narcotized by it, without any well-marked or permanent benefit. The moderate use of opiates is admissible; but nothing further. Our own views of the treatment of this disease may readily be inferred from what we have already stated. Without entering into details, we may say, that our therapeutic agents consist mainly of antispasmodics, stimulants, and a supporting regimen. Among the first, we trust to assafœtida, either in substance, or an emulsion, and in large doses, frequently and perseveringly repeated; among the second, we resort to wine, porter, or to alcoholic drinks in moderate quantity, but increased in accordance with the previous habits of the patient, or the severity of the disease. Where there is no great difficulty in swallowing, the assafœtida and other remedies may be administered by the mouth; but when there is danger of spasm of the glottis, or too great rigidity of the fauces to admit of swallowing, these remedies must be administered by the rectum, and they are most efficacious when thrown well up into the colon through a gum-elastic tube. The assafœtida of itself usually acts upon the bowels, but if necessary, more active cathartics, as the tincture of rhubarb and aloes, must be combined with it.

Dr. M'Clellan reports two successful cases of acute tetanus, the only two, as he states, that have ever fallen under his own observation. These appear to have both been liberally plied with opium; but it will also be observed that, in the one case, the strength was maintained "by the liberal use of brandy with gruel;" and, in the other, "by the liberal use of brandy and gruel, with broths."

> "In the case of young Mr. Bockius, of Germantown, whom I attended in consultation with Dr. Runckel, Sr., we first cut away the comminuted fragments of two metacarpal bones of the left hand, which had been shattered by the bursting of a gun, and dressed the wound with terebinthinates. We kept up irritation over the whole spine by frictions with croton oil and tartar emetic, and gave 82 to 86 grs. of opium a day, for about two weeks, without producing any coma or oppression. The remedy appeared to expend all its powers in allaying the universal tetanic rigidity and spasms. We also rubbed mercurial ointment over the limbs, and gave calomel in combination with the opium, until a moderate ptyalism was produced. The bowels were kept open by occasional doses of croton oil, and the strength was maintained by the liberal use of brandy with gruels. In a few days the wound began to suppurate, and the rigidity and spasms disappeared. The patient has continued well for about fourteen years.
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> "The other case of cure to which I have alluded, was that of a house carpenter, Mr. McGlathery, in North Fifth street, who was seized with a universal rigidity and painful spasms on the ninth day after a deep puncture in the sole of one of his feet from a rusty nail. The wound was perfectly dry, and more than an inch deep, when I laid it open and stimulated it with lunar caustic. It was then dressed with spirits of turpentine and basilicon. As he was cold and shivering, I continued the use of a hot vapour bath which a steam doctor had begun to apply, for many hours, and gave three grs. of opium and five of calomel every hour, till an impression was made on the spasms. No narcotic impression was induced, although I increased the doses to nearly 100 grs. a day, occasionally. On an average, he took full sixty grs. of opium *per diem*, for twelve days, and the calomel was aided by mercurial frictions, until ptyalism was induced. The spine was at the same time irritated by blisters and tartar emetic ointment. He was supported throughout by the liberal use of brandy and gruel, with broths, and finally recovered perfectly."—p. 210–11.

Syphilitic Poisons.—Dr. M'Clellan is a believer in the plurality of syphilitic poisons.

> "It is impossible, from the very nature of things, that septic poisons should not vary. The elements and products of secretion vary in the different parts of the same complications of organs, even in the same sex; and when we take into

consideration the commixture of these secretions, after irregular and promiscuous intercourse between the most filthy and negligent of both sexes, we can experience no difficulty in concluding, that the chemical or putrefactive reactions which take place among them, must be productive of diversities of animal poison. Each form of the virus on being once generated, may continue to be propagated for an indefinite period by contagion: or it may finally wear out, or be lost for want of means of communication; and then a new species be formed afresh from another concomitance of circumstances. In the same way we may conceive of a number of contagions going on collaterally at the same time, through different members of the same community, although not mixing with each other respectively."—p. 226–27.

The foregoing argument in favour of essential differences in the syphilitic virus, might be worthy of more consideration than we can bestow upon it, if it did not apply with as much force to the virus of small-pox, measles, scarlatina, &c., as it does to that of the venereal disease. Following the opinions of Mr. Carmichael, our author maintains as certain, what the other has advanced only as probable. "Thus," says Mr. Carmichael in regard to the different forms of the disease, "whether the variety is owing to a diversity of poisons, or a diversity of constitutions, is a question that can only be resolved by a series of experiments, which it is not to be expected that any man will be so public spirited as to submit to himself, or so unreasonable as to inflict upon others." (*Observations on the Venereal*, London, 1818, p. 5.)

But, says Dr. M'Clellan:—

"Like all other animal poisons, the different forms of venereal virus, when introduced into the circulation, produce a train of constitutional symptoms of greater or less regularity, and characteristic marks of an indisputable species, according to their durability of impression and the periods allowed for calling the different textures of the body into diseased action. Every virus which gains a rapid admission into the system, and produces an immediate effect upon the constitution, terminates in such tumultuous and dangerous excitement, as can hardly be arranged under any particular head of nosological arrangement. On the other hand, those which confine themselves a long while to the part with which they first come in contact, and are slowly afterwards propagated throughout the system, terminate in symptoms of a much more definite and characteristic form, susceptible of comparison and classification."—p 228.

Our author having adopted Mr. Carmichael's views in regard to distinct species of syphilis, follows him also in the classification of these, in the delineation of symptoms and sequences by which they are characterized, and in maintaining the invariable connection between the primary and constitutional symptoms of each species. To enter into an examination of these disputed points in the history of the venereal disease, would be to undertake a review of the whole of Mr. Carmichael's doctrines and hypotheses, instead of a hurried notice of the work of our present author. And this we do not feel called upon to do at present.

Describing first the constitutional symptoms, and afterwards taking up the primary forms of the disease, the present essay is deficient in that simplicity of arrangement which should naturally grow out of the progressive developments of the disease itself, and which is, in some measure, necessary to make the description of it clear and intelligible to the student. Dr. M'Clellan's account of the various manifestations of the disease, however, is drawn with the ease and boldness of one who has long been familiar with his subject, and the course of treatment which he points out to meet and overcome these, is, in general, judicious and unobjectionable. In this connection we shall offer only one or two comments on topics of minor importance.

Local Treatment of Nodes.—We have a special object of our own in alluding to so small a matter as the local management of nodes. Our author speaks of the treatment of periosteal swellings on two occasions: but on neither occasion do we meet with a mode of management which we have ourselves employed with marked advantage. "When the periosteum is affected," says he, "and especially when matter is confined beneath it, the stimulus of distension causes excessive pain and disturbance. What are called the nocturnal pains then become excessively distressing, and require deep incisions to relieve them." (p. 257.) He elsewhere alludes to the use of blisters, mercurial inunctions, lunar caustic, iodine, and anodyne embrocations. (p. 299.)

The practice to which we allude is, to divide the periosteum freely over the whole of the diseased part by a subcutaneous incision, leaving the skin untouched, except so far as is necessary to introduce the blade of a narrow, sharp-pointed bistoury. This practice we have employed for years past, as a substitute for the more formidable division of the soft parts. The relief obtained from the subcutaneous operation is quite as decided as from the free incision of the skin; and the inconveniences resulting from the latter, are in this way almost entirely obviated.

Local Treatment of Sympathetic Buboes.—These our author treats with the view of repelling them, on the principles that apply to ordinary inflammatory swellings. "The treatment," he observes, "is often more protracted and unsuccessful than in genuine buboes from absorption of the morbid poison of true chancre." He recommends leeches, blisters, emollients with lead water, and various stimulating and escharotic applications (p. 276). But he forgets to speak of repose, and of the use of continued and well-regulated pressure, either by means of the compress and spica bandage, or by the direct application of some weighty substance over the affected part.

Local Treatment of Gonorrhœal Inflammation of the Testicle.—In the management of this affection, Dr. M'Clellan speaks of active depletion, followed by mercurial cathartics, antimonials, and copious leeching over the scrotum; of the recumbent posture, elevation of the affected organ, and poultices with lead water, until the inflammation is overcome; afterwards a suspensory bag, the use of laxatives, and the application of a mercurial plaster to the scrotum (p. 276). We would add to the treatment for the early stage of the disease, a brisk emetico-cathartic, with a tobacco poultice to the scrotum: and to the treatment of the latter stages, firm and equable pressure by means of adhesive straps; renewing them from time to time, as the swelling subsides.

Morbid Growths.—The closing portion of this volume is an essay of 120 pages on the various forms of tumours, and other adventitious growths, benign and malignant. On this part of the book we scarcely feel at liberty to enter. The materials, as we here find them, could not have had the benefit of the author's revision, after his first draught. And although in these latter pages we meet with numerous and important details on some of the most interesting diseases that fall under the care of the surgeon, elucidated with a profusion of cases that have at different periods fallen under the author's own observation, yet, as a whole, this essay appears to us little else than a hurried digest of certain portions of Vogel's Pathological Anatomy. We may, therefore, reasonably suppose that, had its author lived, he would have materially modified it, and perhaps have entirely recast it, before presenting it to the profession.

It is now full time to bring our notice of this volume to a close. In the perusal of its pages the reader will find abundant evidence to convince him that its author had the advancement of his profession much at heart; that he was an acute, assiduous, and bold practitioner; and that his surgical reputation was deserved. But he will find in the work the development of no new principles; and but little that can be looked upon as original. The author's principal claim to permanent reputation will probably rest on his numerous extirpations of the parotid gland. But the great number of cases upon which he has attempted this operation, and the record which is here furnished of some other of his more serious performances, must lead us to believe, that he was not, at all times, insensible to that sort of *éclat* which is, even still, so readily bestowed upon surgical temerity.

So far as the Editor has shown himself in the preparation of this volume, his task has been commendably executed. The hint which he throws out, of continuing the work to its completion, it may not perhaps be thought proper or expedient to carry into effect. We would, however, respectfully suggest to him, that by collecting and arranging under proper heads the more valuable of his father's cases, of which he has probably left written reports, and publishing these with a running commentary of practical remarks,—he might do more for perpetuating his father's reputation, and for augmenting his own, than can possibly be effected by attempting to complete the present work. J. W.

New York, *August* 12*th*, 1848.

BIBLIOGRAPHICAL NOTICES.

ART. XVI.—*An Inquiry into the Degree of Certainty in Medicine; and into the Nature and Extent of its Power over Disease.* By ELISHA BARTLETT, M.D., Professor of the Theory and Practice of Medicine in Transylvania University, &c. Post 8vo. pp. 84. Lea & Blanchard, 1848.

THE readers of Dr. Bartlett's "Philosophy of Medical Science," will assuredly not wait for the opinions of professed critics before procuring the little work of which the title has just been given. Whatever proceeds from this author relating to the foundations of medical evidence, or claiming to illustrate and defend that ancient faith whereby we live and make live, cannot fail to be received with honour and perused with interest, by all who are acquainted with his previous labours. This analysis is more directly presented to other portions of the medical public, to awaken a curiosity in them which they cannot gratify without gaining valuable instruction, and becoming more firmly and intelligently attached to the divine art which they profess. From the rare occurrence of technical words, and the explanations given of several of these, it may be presumed that the author of this essay addressed himself in a particular manner to non-medical readers; he indeed expressly states that he was moved to take up his pen by the one-sided and therefore false view of medicine, which had been given in the well known and widely distributed article of Dr. Forbes. To the poison which has so greatly, although indirectly, been imbibed from this production by the skeptical, both within the profession and external to it, Dr. Bartlett has prepared an antidote which, if applied with half the zeal that has been used to propagate the corresponding error, cannot fail, in a great measure, to neutralize it. Not to be misunderstood, we beg distinctly to say, that we regard Dr. Forbes's essay as mischievous, not because it is untrue, but because it does not tell the whole truth; because, as our author expresses it, the confession of the defects inherent in medicine was not accompanied "with the qualifications and conditions absolutely essential to the truth of the confession itself." If the confession had been made to physicians alone, instead of being disseminated amongst the laity, as it was in this country, by republication in a separate and cheap form, it would have been productive of almost unmingled good. It might, indeed, have moved the ire of that portion of the medical populace who can make no distinction between credulity and faith, and who are as incapable of reasoning logically as they are of observing correctly; but it would have stirred even more deeply and fruitfully than it has done, the governing minds of the profession, and it would not have excited that apparent dissent and hostility, but real co-operation by carrying out the incomplete doctrine of its writer, of which the essay before us is the most important illustration. Of Dr. Forbes's paper we will only say, in addition, that it contains some positive errors which, although inconsiderable as affecting the general argument, have, nevertheless, been assumed as true, and dwelt upon as if they contained the pith and substance of the whole matter. We allude to the statistics of the homœopath, Fleischmann, which are now ascertained to be not only incorrect, but wilfully false. That credit should have been attached to them originally, arose from the fact, that in Vienna all practitioners of medicine are obliged to undergo the same course of study and examinations, and that, consequently, even homœopaths are of necessity educated men, possessed of a legal rank, and therefore to some extent respected. It now turns out that the intellect that was weak enough to thrive on the windy emanations of the seer of Meissen, was allied to a conscience which did not restrain its possessor from selecting patients of robust constitution for his hospital, and those, especially, who were recommended by their religious enthusiasm,—from counterfeiting the diagnoses reported on the registers; and even from sending away those who could not recover, lest their deaths might swell that infinitesimal mortality which the interests of Hahnemannism, if not of truth, required to be as nearly as possible expressed by a blank in the hospital reports.

Dr. Bartlett states as one of the general motives to his inquiry, that confidence in medicine has *within the last few years*, been greatly lessened and impaired. We question the propriety of representing the prevalent skepticism as so nearly exceptional; it may, perhaps, be somewhat more widely spread, but it has not taken nearly so deep a hold of the educated classes as during the last century. During the great intellectual revolution which preceded that of physical force in France, the evil was of greater magnitude than now. Cabanis writing in 1788, says: "Not long ago it was the fashion at Paris to ridicule medicine, and treat its powers as chimerical . . . . The apes of literary men, vain of appearing like them above superstition, fancied themselves bound to retail in society the arguments of Montaigne, the jests of Molière, and the vagaries of Rousseau. Day after day these very persons who denied a Providence and a plan in creation, would argue that the cure of diseases was due entirely to provident and wise nature." To represent our art as now, for the first time, the subject of ridicule, or the object of hostile attacks, is discouraging indeed, for we are thereby led to exaggerate its defects and its danger. Physicians should know that from the time of Hippocrates downward, the same railing accusations have been brought against medical art, and have been repelled with the same shield which truth and nature still extend before their first-born child. We draw no argument for apathy from the certain ultimate failure of these assaults; they must be met, and the assailants shown that their shafts are spent against a panoply which is impenetrable over every vital part.

It should be recollected that at the present day medicine is by no means alone in exciting the hostility of the scorner and the skeptic. The number who attack its claims to confidence is far less than of those who proclaim the most uncompromising enmity to whatever is consecrated by time and human reverence, in religion, in art, and in political institutions, and who gravely, or at least boldly, maintain that the experience of thousands of years is to kick the beam when weighed against their crude and flimsy fancies. The general upturning of society which has converted every man into a legislator, has made him vainly imagine that the right implies the capacity to legislate; and at the same time, in conferring the legal power to express opinions upon all subjects whatever, has encouraged, if not created, the conviction, in the minds of too many men, that they are competent to judge of every question in science and art which they choose to arraign at their tribunal. When human affairs shall have regained their equilibrium, these impertinent pretenders will sink to their natural and base level, and it will once more be recognized as an eternal truth, that skill depends on knowledge and talent, and that they alone are competent to express opinions on a subject, who are fortified with the completest knowledge of its nature and relations. To offer proofs of the power of medicine to minds distorted in the way described, were altogether useless; they will go on misrepresenting its principles and practice until pain drives them to demand its assistance; just as they malign the laws until some invasion of their rights makes it convenient to seek the aid of justice; or as they sneer at religion until they find that there is one hour, at least, in life, when none but one of *its* ministers can thrust back the grim legion of regrets and fears which trample down their boasted courage. But there is a large class composed of persons hurried into doubt by the mischievous current of the age, who nevertheless do not yield to it entirely, and would gladly stay their descent upon any firm footing of truth; to the rescue of these persons, most valuable by their intelligence and honesty, it behoves us to come; and many such, we cannot doubt, will be won from their peril and disgrace by the calm and incontrovertible arguments of our author.

The title of Dr. Bartlett's essay, it will be perceived, is the same as that of Cabanis, but his mode of treating the subject is somewhat different. The French writer, in a noble strain of eloquence, annihilates, one after another, the objections of cavillers, great and small, against the certainty of medicine; the American author, taking up the examination of particular diseases and classes or groups of diseases, *demonstrates* by a calm and cautious process that science is as far advanced in a knowledge of them, as of any other branch of organic natural history; and that medical art exerts upon them a positive and powerful control, the degree and limits of which he accurately points out. We proceed to sketch an outline of his argument.

After showing that the completeness of anatomy and physiology is as satisfactory as it is in any of the natural sciences, and that it is constantly becoming more perfect, Dr. Bartlett proceeds to prove that our knowledge of the causes of disease, of the seat and phenomena of disease, and of the means of preventing, mitigating, and removing disease, is both real and very considerable. Taking pneumonia as an illustration, he passes in review the anatomical characters of this disease, showing that they are as constant and uniform, and as thoroughly known, as the facts of any physical science whatever; and that its rational and physical symptoms have been so carefully studied and accurately determined, that there is no lack of certainty and positiveness in the signs by which pneumonia is revealed to us during life. Further it is shown that the danger of pneumonia has been accurately measured. and proved to depend upon the age at which it occurs, the constitution and habits of the patient, certain combinations of symptoms, epidemic influences. &c. The probable mortality of a large group of cases occurring under determinate circumstances may be predicted, although the issue of any given case cannot be foretold with equal certainty; the probabilities, however, can be very closely calculated, because the several circumstances which influence and indicate the degree of danger have been very accurately ascertained. Such facts, our author very fairly argues, ought "to convince the most skeptical, and to satisfy the most incredulous, that the science of medicine, so far at least as pneumonia is concerned, in no degree deserves the charges of incompleteness and uncertainty which have been laid at its door."

"But the value of medical science depends wholly upon its connection with medical art;" it is a blessing and benefit to mankind in so far only as it is capable of preventing, curing, or mitigating disease, and its claim to possess these qualities is precisely that which inspires least confidence, and is most eagerly assailed. "Practical medicine, it is asserted, is altogether a hap-hazard affair of guess and conjecture, doing good, when this happens, more by accident than according to any constant and fixed principles, and as often doing harm as good." The fallacy and injustice of this opinion are fully proved by adducing the results of treatment in pneumonia. And here we beg to direct the attention of those who undervalue the numerical method of recording and investigating the phenomena of disease, to the fact that the argument of our author could never have acquired the force of a demonstration without the aid of this method. Cabanis and others had long ago insisted upon what indeed they knew to be true, that medicine was curative, and one plan of treatment more curative than another, but with those who were not eye-witnesses and competent judges of the causes and tendencies of disease, the vagueness of the proposition was fatal to its acceptance, nor could their assent to it be challenged until it was shown *how much* disease is indebted to treatment for its cure, and *how much* one method excels another. This our author has accomplished successfully by employing the materials furnished chiefly by Louis, Grisolle, and Dr James Jackson.

Between 1821 and 1827 Louis studied the effect of bleeding upon pneumonia. "Of fifty cases terminating in health, twenty-three were bled, for the first time, within the first four days from the commencement of the disease, and the average duration of the disease in these cases was *seventeen* days; twenty-seven were bled for the first time between the fifth and ninth days inclusive, and the average duration of the disease in these cases was *twenty* days." Between 1830 and 1833 Louis made a similar comparison of results in twenty-five cases of pneumonia which got well, and found the average duration of those which were bled previous to the fifth day was *fifteen and a half* days, while those which were bled from the fifth to the fourteenth day inclusive, lasted *eighteen and a quarter* days on an average. Now unless it is alleged that bleeding in pneumonia is essentially mischievous, and that, therefore, these statements are merely comparisons of evils—no sound mind can resist the conclusion that depletion performed during the first four days of an attack of pneumonia shortens the disease by one-fourth or one-fifth.

But to make the proof complete, we are not compelled to *assume* that bleeding is in any degree useful in pneumonia; that, also, can be demonstrated. In 1840, M. Grisolle treated eleven cases of this disease without using any active remedies, as they were sufficiently mild to justify him in so doing. "*The cases all terminated favourably*, but it is very important to remark that considering the limited extent of the inflammation, and the general mildness of their character, *the prominent symptoms of the disease persisted for an unusually long period of time.*" The pain in the side, for instance, did not wholly cease in any case until the seventh day, and in several it continued till the twentieth, twenty-fifth, and twenty-seventh, its mean duration being fifteen days." The general fever usually continued until the tenth day, the physical signs did not begin to diminish before the close of the second week, nor convalescence commence until about the twelfth day. In strong contrast with these cases, another group is furnished by M. Grisolle, consisting of thirteen, quite comparable with the last as regards age, constitution, and severity, and which were treated by depletion. In these the average duration of the pain in the side was only eight days, the general fever subsided at the end of the first week, and convalescence was fully established twenty-four hours later.

From all these facts no ingenuous reasoner can avoid concluding, first, that bleeding has a sanative influence on pneumonia, and secondly, that this influence is greatest the nearer to the commencement of the disease it is employed. Were there no other facts than these on record, the conclusion would remain equally absolute and equally valid. But not on these alone does the argument for the certainty of medicine rest. Others of a like character are at hand which so confirm the foregoing, and fortify the reasoning which they furnish, as to leave no hole through which even the most lithe and slippery skeptic can escape.

In 1836, Dr. J. Jackson, of Boston, published a detailed analysis of thirty-four cases of pneumonia, which shows the influence of bleeding upon the disease in the light already presented. "The average duration of the disease in those who were bled for the first time on or before the fourth day, was about *twelve* days, the average duration in those bled after the fourth day was *thirteen and a quarter*; and in five cases which were not bled, except locally in one, the average duration was *fourteen and a half* days, nearly. The latter cases were also the mildest." Results essentially the same as these, are afforded by an analysis of two groups, the one of fifty, and the other of one hundred and eighty-two, cases of pneumonia observed by M. Grisolle. Both were principally treated by depletion In the one the treatment began, on an average, between the third and the fourth day, and the mean period of convalescence was towards the tenth day; in a hundred and one cases of the other group in which depletion was principally used, the frequency of the pulse was more or less diminished after the first bleeding, and when this was performed previous to the fourth day the pulse fell to its natural standard by the eleventh; but when the operation was later performed, the pulse did not reach its natural standard until near the thirteenth day. Thus, we must conclude with Dr. Bartlett, "Louis has *demonstrated* that the circumstance of a few days' difference in the time of practising blood-letting makes not merely a trifling and unimportant, but a very considerable, difference in the duration of the disease, and a corresponding difference in the duration of its leading symptoms. Grisolle has demonstrated, in the same manner, that mild and slight cases of the disease, although they would recover without any active remedies, *have all their prominent symptoms very greatly mitigated in severity and shortened in duration by blood-letting*. . . . I ought to add here that these positive results of Louis's and Grisolle's researches *stand entirely uncontradicted by any adequate counter testimony.*" There is still another and a very important deduction to be drawn from the facts which have now been presented, a deduction most gratifying to every faithful disciple of the healing art; it is "that the accredited and settled belief which has prevailed ever since the age of Hippocrates in the efficacy of blood-letting in the treatment of pneumonia, is not an error and a delusion: it has its foundation in nature and in truth . . . and is sustained by proof, by all the proof, and the only proof of which, in the nature of things, it is susceptible."

A similar and, if possible, more decisive argument in favour of the certainty of medicine is drawn by our author from Grisolle's records of the treatment of pneumonia by tartar emetic. We cannot follow him in his exposition of the palpable effects of this agent upon all the prominent symptoms of the disease, nor do much beyond stating his conclusions. The first series of cases contains forty-four, generally grave, and in which no active remedy was made use of excepting antimony. Under its operation the pain was speedily relieved, and in some cases immediately removed; in twenty-seven out of the thirty-eight who recovered, the pulse fell to the extent of from ten to forty in a minute on the second day; with a single exception the physical signs remained stationary, or began to diminish from the first day of the administration of the medicine; the heat of the skin, the headache, the thirst, and the general restlessness, diminished or ceased with the same promptitude; the convalescence was remarkable for its rapidity, and the small impairment of the muscular strength; and the mean duration of the disease was only ten days. A second series consists of eighty grave cases in which antimonials had been preceded by local or general depletion. In the seventy patients who recovered, the treatment produced a rapid amelioration of the chief symptoms, and, in two-thirds of them, a very decided amendment took place during the first two days. In a third series of thirty cases which had been copiously bled, but still grew worse, the antimonial treatment was employed as a last resort. Half the cases were desperate at this period. "In nine cases where life was in imminent peril, there was so decided an amendment after the first, second, or third daily potion, that the patients might be looked upon as almost out of danger."

In analyzing the evidence which has now been summarily presented, Dr. Bartlett admits, or rather infers, first, that a certain number of cases of pneumonia recover by mere dietetic and regimenal treatment, not by chance, however, but only provided that they occur under certain determinate conditions of age, constitution, gravity, &c., conditions which medical science alone has revealed. In the second place, it cannot be denied that a certain, but smaller number, also, are inevitably fatal, fatal in the nature of things, and by their own constitution; the conditions of this result have also been discovered by medical science. Finally there is a third and largest class whose termination is contingent; it depends upon circumstances, among which is the treatment employed, for "*it is impossible to doubt that a remedy, or a method of treatment, possessing great and unequivocal control over a disease, almost invariably, when properly and promptly applied, greatly mitigating its severity, and abridging its duration, must often determine the issue of disease, and save the life of the patient.*" In the last class of cases which neither tend spontaneously to recovery, nor result inevitably in death, "*the issue depends upon the treatment of the disease.*"

We agree with our author that they greatly err who suppose that a power, such as medical art is here shown to possess, "is so qualified and contingent as to be of little worth." It is, in fact, immense, since, in a large number of cases, it holds the issues of life and death. Besides, omitting for the present more than a passing allusion to its benign faculty of palliating what it cannot cure, the degree of certainty in medicine is infinitely precious, for it is the highest compatible with the nature of the case. To the individual patient it is beyond all price, for who but the physician can decide upon either the nature or the gravity of his disease? who else detect the signs of its passing from a mild to a grave form? or who else determine the appropriate method of treating it according to the new phases which in its progress it presents,—when to withhold the hand wisely, or when opportunely to interfere? It is clear that unless the physician can aid him, he is utterly without rational hope of assistance. If there is any human helper for him, the physician must surely be that helper.

There are still some who concede the claims which medicine has established, but, attracted by the novelty, the vigour, or the mysticism of some medical heresy, become its partisans and subjects, and assume that the evidence in its favour is, at the least, equal to that of legitimate art. With Dr. Bartlett, we demand their proofs; but the leaders of these delusive and dangerous systems have furnished none. "Yet until they exhibit some evidence of the efficacy of their remedies, such as scientific medicine has exhibited of *its*, until they can point us to investigations corresponding, at least in some feeble degree, to those which I have cited, it is difficult to see by what rules of logic, by what principles of philosophy, or by what code of morals, we can be asked to believe in their doctrines or to adopt their practice."

Dr. Bartlett devotes some space to considering a probable objection to the preceding argument,—that it relates to but one disease, and may be quite inapplicable to all or to many others, and he shows that what has been proved in regard to pneumonia, is true of many other diseases both in kind and degree, and of all but a restricted class, in kind if not in degree. He then proceeds to inquire what power medicine exerts over each of the several classes into which he divides diseases. In this discussion the nature and limits of medical art are clearly depicted in the modest but unchangeable colours of truth.

The first class consists of diseases of slight severity, such as common catarrh, simple diarrhœa, and simple muscular rheumatism, which indeed subside and disappear in a few days, under diet and rest alone, but which may often be cut short or greatly modified by proper medicinal treatment. These are cases familiar to all the world, and it seems strange that the evident efficacy of gentle medicines in them, should not have more generally suggested the probability that stronger agents might be proportionably curative in grave attacks of disease.

The second group comprises disorders which have a slighter tendency to cure, and yet rarely destroy life, as chorea, chlorosis, and functional dyspepsia. These are almost as positively under the control of medicine as the first class. Chlorosis is a most distressing and yet an eminently curable disease. Nature does little or nothing for it unaided by art, and to art the power of curing it is due. Dr. Bartlett well remarks that "if our science and art had done nothing else than to ascertain the effects of iron upon this malady, they would have given a gift to humanity that ought, at least, to shield them from the blind and bitter assaults of arrogant ignorance and wooden-headed stupidity."

In the third group are included diseases which do not ordinarily destroy life, but which are somewhat graver than most of the foregoing: such are *sporadic* dysentery, simple acute rheumatism, acute pleurisy, and tonsillitis. The first will usually get well without medicine, and may be arrested *in limine* by a full dose of opium; the others are much less readily or certainly controlled by treatment unless it is applied in their incipient stage, in which case they are occasionally cut short, or else materially mitigated.

A fourth (which indeed might have included the third) class comprises most of the more serious local inflammations, and all the general fevers, hooping-cough, cholera, erysipelas, delirium tremens, and so on. These are, for the most part, self-limited, and tend either to recovery or death, according to the circumstances which influence the severity of the disease. Pneumonia belongs to this class, and what has been said of the influence of remedies upon it, is to a greater or less degree, true of them. Of each disease, the three sorts of cases already described may be met with, and of each, therefore, there is a considerable number whose issue depends altogether upon the treatment. In this category we meet with brilliant and unequivocal therapeutic results; the antiphlogistic power of antimony in pneumonia; the narcotic, antispasmodic, and anodyne powers of opium; the effects of emetics in croup; of wine and other stimulants in petechial typhus; of quinine in periodical fevers, &c. The virtues of the last named agent it is equally impossible to call in question, and to over-praise; and scarcely less eminent and undeniable are the salutary effects of stimuli in the typhoid and exhausted states of numerous diseases. His experience must be very small who has not repeatedly witnessed the rescue from death, by a few draughts of wine or brandy, of a patient whose life has for hours hung trembling upon the confines of the grave. The power of medicine to save life is just as unequivocal here, as in arresting suffocation by the removal of a foreign body from the trachea.

A fifth group of diseases remains, comprising those which, in the present state of our knowledge, are incurable, or but little under the control of medicine: such are hydrophobia, diabetes, phthisis, tuberculous meningitis, epilepsy, traumatic tetanus, cancer, softening of the brain, granular nephritis, and various structural lesions of the heart and other viscera. Some of these appear to be absolutely irremediable, or at all events, the chances of cure in a given case, of hydrophobia, for instance, is probably not one in a million; and little more can be said of the favourable chances in diabetes, centric epilepsy, and tuberculous meningitis. Of the remainder, phthisis and softening of the brain, and cancer, occasionally get well, or, like valvular disease of the heart, remain stationary for many years; in either case, perhaps as often without as with special medicinal treatment, while traumatic tetanus, a disease almost inevitably mortal, when abandoned to itself, has been repeatedly cured by the prompt and vigorous interposition of medical art. But while it must be confessed that, with the exceptions named, medicine is unable to *cure* the diseases of this group, she is not, therefore, useless; her ministry might as well be rejected for them, as the principles of honour, morality, or religion, because they only enable us to bear inevitable ills, under which, without their support, we should readily succumb. If medicine does nothing more for these diseases, says Dr. Bartlett, "it occasionally [we would say very frequently] defers their final period; and very generally it renders less rough and painful than it would otherwise be, the pathway to the tomb; it brings rest if not healing on its wings; it takes some drops of bitterness from the cup it cannot remove; it smooths the pillow, and spreads tenderly the couch of our last long sleep."

It should also be observed that medicine is not chargeable with the incurability of disease. As all the living must certainly die, it is clear that there is a limit to the progress of art which is fixed and impassable. Yet within this ultimate bound there is, as our author justly maintains, a constant and indefinite progression, and it is no less bad logic than faint philanthropy, to suppose that diseases which now defy our skill, must continue to do so. As well might it be alleged that syphilis, periodical fevers, traumatic tetanus, and croup, have destroyed as many victims since they were treated with mercury, bark, revulsion, and emetics, as before these agents were directed against them.

Dr. Bartlett next alludes to the striking efficacy of medicine in scrofula, some chronic affections of the skin, and above all syphilis, painting in true but vivid colours the train of hideous symptoms induced by this disease, which, when unopposed by art, "not only extends and multiplies itself, until every fibre and fluid of the body is involved in its foul contamination," but corrupts the fountain of life, and afflicts successive generations with an hereditary taint. The manifold benefits of medicine in obstetrics are summarily stated, with the unquestionable fact, that the life both of mother and child is frequently saved by the physician's timely interference. The usual facility and safety of labour have induced some persons to decry the value of obstetrical art, and even to deny the necessity of employing a physician in ordinary cases; but they probably do not know, or they forget, that it is only by superintending the progress of a case that the obstacles to its favourable issue can be early enough detected to ensure their removal; and they likewise forget that if there were none to study, and that habitually, the normal process of parturition, to determine how far nature is capable of repairing her own errors, and when, on the other hand, the aid of the physician is necessary,—there would be none to understand, and none, therefore, to teach that art on which the safety of so many lives depends.

The immunity of surgery from the detraction and skeptical cavils which assail the medical department of the healing art, is correctly enough attributed by our author to its mechanical processes, which appeal so directly and forcibly to the senses of the unskilled. But he shows that "there is no essential difference between the certainty of the surgical and the certainty of the medical art. The processes and operations of the surgeon, like the medicines of the physician, are his means for the removal or mitigation of disease, and, like the latter, their efficacy and success are always more or less contingent and uncertain." The idea contained in the last sentence seldom or never occurs to laymen, and not with sufficient frequency to medical practitioners. The surgeon is commonly judged by his *operation*, but the physician never gets credit for his operation, i. e. his prescription; the former is estimated according to the dexterity with which he applies his means, without regard to their appropriateness or their result; the latter is estimated according to the result alone, and no one inquires what skill, knowledge, or tact he may have shown by his method of treatment. The public form a notion of the comparative value of surgery and medicine, by contrasting the *agents* of the one with the *results* of the other! A comparison of nutritious food and strong men would be just about as rational, and lead to an equally correct idea of their respective merits.

In connection with obstetrics and surgery, allusion is made to the surprising control which medicine is capable of exerting over the throes of child-birth, and the anguish inflicted by the knife, by means of anæsthetic agents, but the author does not consider their value in the former as being positively and definitively determined. We cannot but think their *power* as far beyond dispute in the one case as in the other, and that its reality may with strict propriety be invoked to prove the beneficent influences of the art of medicine, but we are unable, in the present state of the subject, to decide upon the safety of these agents, and consequently, cannot look upon them as acquisitions to the materia medica, destined permanently to enjoy the same freedom and latitude of application as at present.

Not the least, but perhaps rather the greatest, of the triumphs of our art are shown in its power to prevent disease. Those who have not studied the subject, can form no adequate conception of the vast sacrifice of human life which has been almost put an end to by sanatory laws founded upon the data which medical science has furnished. To it are humanity and civilization indebted for staying the awful ravages of the plague and other communicable diseases, by the institution of quarantines; to it they owe the present salubrity of many districts, through the detection of the causes which formerly rendered them the dens of pestilence; to it they must give the glory of having stricken the chain from the limbs of the maniac, and of having converted the receptacles of the insane from howling pandemoniums into well ordered families, where smiling hope unlocks the door to health; to it they must ascribe the almost complete extinction of scurvy by land and sea; and to it that wonderful discovery which has reduced the annual number of victims to small-pox from thousands to tens, and which, if perseveringly applied, would exterminate the malady throughout the world, as it has already done in several localities. To naught, in fine, but medicine lending her aid to legislation, can it be attributed, that the proportion of deaths to births has been constantly declining, and that in some places, during the last century and a half, the average duration of life has more than doubled. If more than two thousand years ago, the Greek poet celebrated the art of physic as "the first and greatest" of the gifts of Prometheus to mankind, how much better reason have we to exalt its worth, which, since the time of Æschylus, has stayed so many plagues, has conquered so many maladies, and has been the inseparable handmaid of civilization, in assuaging the pains, and prolonging the life of man!

From the mingled analysis, citation, and suggested comment, which has now been presented, the reader may, to some extent, judge of the skill and feeling with which our author has, to use his own words, "woven a garland for the august and god-like forehead of the genius of our art." He has done a good work, a work for which he deserves the respect and gratitude of the medical profession, and of all sound-hearted men, whatever their pursuits, who fight under the banner of truth, and are the sworn foes of all imposture, the determined opponents of all error. Not to the snarling pack of cavillers who must needs vent their spite in some direction, and would, if driven from their hold on this, fly at some perhaps more sacred object—not among them would we cast this well-fleshed bone of contention;—they are worthy of no such meal. But we would willingly lay it before all those who will search for its errors only to discover if it is indeed the offspring of truth; for we are persuaded that the reasoning will bear a rigid scrutiny, and that it only errs by claiming less for medicine than is its legal due. To all who sincerely doubt the certainty of medicine, and to all who cannot state the grounds of their faith in its efficacy, we commend this argument as convincing and satisfactory; and, finally, we hope that it will be read by every member of the medical profession who desires to learn more fully, or to hear rehearsed anew, the virtues and charms of the mistress whom he loves and serves. With an eloquent summary of these, from which we extract the following passage, our author concludes his voluntary task.

"There is no process which can reckon up the amount of good which the science and art of medicine have conferred upon the human race; there is no moral calculus that can grasp and comprehend the sum of their beneficent operations. Ever since the first dawn of civilization and learning, through

'The dark backward, and abysm of time,'

they have been the true and constant friends of the suffering sons and daughters of men. Through their ministers and disciples, they have cheered the desponding; they have lightened the load of human sorrow; they have dispelled or diminished the gloom of the sick chamber; they have plucked from the pillow of pain its thorns, and made the hard couch soft with the poppies of delicious rest; they have let in the light of joy upon dark and desolate dwellings; they have rekindled the lamp of hope in the bosom of despair; they have called back the radiance of the lustreless eye and the bloom of the fading cheek; they have sent new vigour through the failing limbs; and, finally, when exhausted in all their other resources, and baffled in their skill—handmaids of philosophy and religion—they have blunted the arrows of death, and rendered less rugged and precipitous the inevitable pathway to the tomb. In the circle of human duties, I do not know of any, short of heroic and perilous daring, or religious martyrdom and self-sacrifice, higher and nobler, than those of the physician. His daily round of labour is crowded with beneficence, and his nightly sleep is broken, that others may have better rest. His whole life is a blessed ministry of consolation and hope." A. S.

Art. XVII.—*An Analytical Compendium of the Various Branches of Medical Science, for the Use and Examination of Students.* By John Neill, M. D., Demonstrator of Anatomy in the University of Pennsylvania, Lecturer on Anatomy in the Medical Institutes of Philadelphia, etc., and Francis Gurney Smith, M. D., Lecturer on Physiology in the Philada. Assoc. for Med. Instruc., Fellow of the College of Physicians, etc. Philadelphia: Lea and Blanchard, 1848. 12mo. pp. 908.

The present compendium consists of a series of "Hand Books," or manuals, on Anatomy, Physiology, Surgery, Obstetrics, Materia Medica and Therapeutics, Chemistry, and the Practice of Medicine. It is not offered as a substitute for the ordinary text-books, or to lessen the necessity of regular attendance on lectures or close office study, but solely to assist the student of medicine in the prosecution of his labours. and the practitioner, in refreshing his recollection of former studies.

The authors disclaim all pretension to originality. "As an *Analytical Compendium*, its highest claim is to be considered a faithful digest of recorded facts and opinions. They ask for it nothing more, and, to obtain this, they have freely used the standard text-books of the day, gleaning from them whatever seemed useful to their purposes, even in some instances to the use of language as well as ideas, and to them they own their indebtedness."

The several manuals embraced in the Compendium of Drs Neill and Smith, it must be admitted, have been prepared with much skill and judgment, and present a correct outline of the several branches of medical science of which they respectively treat. Having already, on more than one occasion, expressed our objections to works of the character of the one before us, however unexceptionable they may be in point of execution, it is scarcely necessary to urge them again here. It is true that a good analytical compendium of the various branches of medical science will be found, on many occasions, a *convenient* table book to both student and practitioner; it may be useful to the first, to test the accuracy of the knowledge he has acquired, and to the second, to refresh his recollection in regard to any particular fact or opinion upon which it may have proved faithless. But even in this point of view we cannot admit them to be absolutely necessary, and a great objection to manuals, compendiums and digests arises, not so much from their legitimate use as from their great liability to abuse. They have, we fear, too often encouraged the indolent student to turn aside from the true sources of that knowledge which is essential to fit him for the faithful performance of his duties as a physician, and to dissuade him from that system and diligence of application in the acquisition of professional information which make, as it were, his own, by imprinting clearly and strongly upon his mind, the very digest of recorded facts and opinions which the manual presents to him, without the expenditure on his part of either time or labour; but, at the same time, divested of any history of the steps by which these facts and opinions have been arrived at, of the basis upon which they rest, and in short of all collateral matter calculated to give to them their true value and relative importance. Consequently the study of manuals is apt to lead to a superficial instead of a full knowledge of the subjects of which they treat; to an acquaintance with the mere outlines of science rather than with the science itself.

But, notwithstanding the valid objections against manuals and compends, resulting from the improper use made of them, it is very certain that works of this description will be published and resorted to by the student. A kind of necessity for them has been created in the minds of the latter, which, from the facility of gratifying it, becomes very difficult to eradicate or counteract. Consequently as we cannot keep these books out of the hands of the student, it is all important that their preparation should be confided to such only as are qualified to render them faithful and true guides to the recorded facts and opinions in reference to the subjects of which they treat. It is in this point of view that the analytical compendium of Drs. Neill and Smith can with great confidence be recommended. As a clear and accurate outline of anatomy, physiology, surgery, obstetrics, materia medica and therapeutics, chemistry and the practice of medicine, it may be profitably consulted. It presents a very fair exposition of acknowledged facts and generally received opinions. The arrangement adopted will be found at once concise and clear; while its mechanical execution, its copious pictorial illustrations in the branches of anatomy, physiology, surgery, obstetrics, materia medica and chemistry, together with its neat, cheap and convenient form, will recommend it to all such students and practitioners who may desire to avail themselves of what cannot fail to prove, if kept within its proper sphere, a convenient and useful remembrancer. D. F. C.

Art. XVIII.—*A Practical Treatise on the Diseases of Children.* By J. Forsyth Meigs, M D., Lecturer on the Diseases of Children in the Philadelphia Medical Association: Fellow of the College of Physicians of Philadelphia. 12mo. pp. 575. Philadelphia: Lindsay & Blakiston, 1848.

This work, which forms the third volume of the "Series of Manuals" now in course of publication under the title of "*The Medical Practitioner's and Student's Library,*" will be found, by the student and junior practitioner, an excellent and faithful guide in their study of the pathology and therapeutics of the more prominent of the morbid affections incident to the period of childhood.

The author has availed himself of the labours of the more authoritative of those who have recently directed their attention to the investigation of this class of diseases, while he has not neglected the results of his own observation, which have, evidently, been made with diligence and accuracy. From the materials thus derived, he has prepared a correct and useful manual that will greatly facilitate the student's acquisition of the more important facts relative to the causes, character, symptomatology and management of the diseases of which it treats; while it will not be found beneath the notice of the practitioner.

Dr. Meigs' descriptions of disease are clear and concise, his pathological views are, in the main, sound, and his practical directions plain, simple, and judicious. His work is far from being a mere compilation from the best authorities, or a simple array of the various and often discordant views of the leading writers on the diseases of children. He has, with judgment, selected his materials, testing them in most instances by the results of his own experience, and endeavouring throughout, to present an exact exposition of the present state of our knowledge on the several forms of disease of which he treats.

It is not our intention to enter into a critical examination of the several chapters of Dr. Meigs' volume. This would be unnecessary, excepting to enable us to express our general assent to the views advanced by him in reference to the subject of each. The few particulars in which we differ from the author being of minor importance, we prefer to pass them over without comment.

In regard to one disease, however, the author has fallen, we believe, into an error, and though this is not calculated to lead to any very serious malpractice, still, as correctness, in a matter relative to the pathology of an important malady, is always desirable, we must be allowed to say a word or two in relation to it.

The error to which we allude occurs in his account of gangrene of the mouth of children. If we understand correctly our author, he supposes that the only form of gangrena oris, properly speaking, is that which commences upon the inside of the cheek. and that the gangrene which commences in the gums, is invariably the result of ulcero-membranous stomatitis; which latter he declares to be the disease described by Dr. B. H. Coates, with the exception of a few cases, as having prevailed at the Children's Asylum in Philadelphia.

There are, we are convinced, several very distinct forms of gangrene of the mouth, and it very frequently occurs in the gums entirely independent of ulcero-membranous stomatitis. Our connection, for many years, with the almshouse infirmary, as out-door physician, gave us an opportunity of seeing a great number of cases of gangrene of the mouth in the children of the poor, inhabiting unhealthy localities in the lower districts. In the greater number of instances the gangrene occurred without the slightest appearance of a pseudo-membranous deposit. The gums became of a dark red or purplish colour, swollen and spongy; there was a profuse discharge of fetid saliva, occasionally mixed with dark-coloured blood. The gangrene was usually, but not invariably, preceded by a number of ash-coloured vesicles, which rapidly increasing in size, coalesced, and finally ruptured, exposing the denuded gum, black and in a state of gangrene. A similar form of gangrena oris is described by Richter. In other cases, the first indication of the disease was some degree of swelling and redness of the gums, succeeded by a separation and slight loss of substance at their extreme edge in contact with the necks of the teeth; this part subsequently became black, and by a succession of sloughs the entire soft parts covering the dental arches were destroyed, leaving the bony structure beneath bare and in a state of necrosis.

This latter form corresponds with the disease described by Dr. Coates in the paper quoted by Dr. Meigs; and from the description given by Dr. C., we should not be led to infer that in any of his cases the gangrene was the result of ulcero-membranous stomatitis. No mention whatever is made of any pseudo-membranous plastic deposit, and from our knowledge of Dr. Coates' habits of cautious and accurate observation, and his faithfulness in delineating the phenomena of disease, we have no reason to suppose so important a fact would have escaped his notice, or if noticed that he would have neglected to record it.

The work of Dr. Meigs has so much of excellence to counterbalance the mistake we have just noticed, that we can, without hesitation, recommend it to our readers as one of the best manuals of the diseases of children in the English language. We regret, however, that the plan of the work did not permit of its embracing all of the maladies incident to the periods of infancy and childhood.

D. F. C.

ART. XIX.—*Reports, for* 1847, *of Institutions for the Insane in the United States*, viz:—

1st. *Of the State Insane Hospital at Augusta, Maine.* By JAMES BATES, M. D.
2d. *Of the New Hampshire Asylum for the Insane, Concord.* By ANDREW MCFARLAND, M. D.
3d. *Of the State Lunatic Hospital, Worcester, Mass.* By GEORGE CHANDLER, M. D.
4th. *Of the State Lunatic Asylum, Utica, New York.* By A. BRIGHAM, M. D.
5th. *Of the New York City Pauper Lunatic Asylum on Blackwell's Island.* By W. H. RANNEY, M. D., *Resident Physician.*
6th. *Of the same.* By JAMES MACDONALD, M. D., A. V. WILLIAMS, M. D., *and* BENJAMIN OGDEN, M. D., *Visiting Physicians.*
7th. *Of the Bloomingdale Asylum for the Insane at Bloomingdale, New York.* By PLINY EARLE, M. D.
8th. *Of the Pennsylvania Hospital for the Insane at Blockley, near Philadelphia.* By THOMAS S. KIRKBRIDE, M. D.
9th. *Of the Ohio Lunatic Asylum at Columbus.* By WILLIAM M. AWL, M. D.
10th. *Of the Lunatic Asylum of Tennessee, at Nashville.* By JOHN S. MCNAIRY, M. D.
11th. *Of the Lunatic Asylum of the State of Georgia.* By THOMAS F. GREEN, M. D.
12th. *Of the Chicago Retreat for the Insane.* By EDWARD MEAD, M. D.

1st. In consequence of an alteration of the time for the termination of the fiscal year of the Maine Hospital, the present report embraces a period of sixteen months. The number of patients admitted is more numerous than at any former term of equal duration, and some applications have been rejected for want of room. A large addition to the building is in progress.

	Male.	Female.	Total.
Patients in hospital, Dec. 1st 1846 - -	59	41	100
Admitted during the 16 months - -	93	64	157
Whole number - - - -	152	105	257
Discharged - - - - -	73	57	130
Remaining, March 31st, 1848 - -	80	47	127
Of the patients discharged, there were cured -	38	30	68
" " " " died -	9	5	14

It appears that heretofore, at this institution as at nearly all others, the number of cures has been essentially diminished by the injudicious and premature removal of patients. "I have now," says Dr. B., "to congratulate the friends of the Insane and of this Institution on the passage of a law, by our judicious legislators, which went into operation on the second day of September last, placing the whole subject in the hands of authorized persons, both in and out of the hospital; so that in future, *feeling*, unaided by judgment and discretion, is not to limit the term of residence here. From the opening of the hospital until the provisions of that law were operative, persons brought their friends when they thought proper, and claimed a right to remove them at pleasure. The consequence was most disastrous to the welfare of those prematurely removed, and to the reputation of the Institution.

"In looking over the reports, it is truly painful to observe the great number who were thus taken away, when in an improving and curable state, either to relapse into a worse and perhaps incurable condition, or to be returned here with the malady greatly aggravated, if not beyond remedy. Sometimes this mischief has resulted from the morbid sensibility of friends, but more frequently from the parsimonious meanness of individuals and corporations."

The following extract is made in the hope that it may be the means of awakening attention to the subject in other states. The laws to which it refers were drawn up by Dr. Bates, and are a model for other communities.

"It is believed that no state in the Union is in advance of Maine, in the humane provision of its enactments in relation to the insane. No longer can jails and dungeons, not even the state prison itself, be inhabited by those deprived of reason; and nothing but the most brutal neglect of humanity and law, by a whole neighbourhood, can consign such unfortunates to hovels, cages, or chains. Any relative or justice of the peace may prevent it."

	Male.	Female.	Total.
Whole number admitted from 14th Oct. 1840	414	331	745
do. do. discharged cured - -			285
do. do. died - - - -			45

The following remarks upon the subject of recent and chronic cases deserve a perusal by persons interested in the treatment of insanity.

"Few things are more various, in the numerous reports which come to hand from Institutions similar to our own, than what are termed *recent* cases. In general, of late years, cases admitted within one year of the attack are denominated *recent*. This would be very well and easily understood, if such cases were continued to be *recent* cases, in the reports, until discharged. But such is not the fact. In one report, which contained a table purporting to give the admissions and discharges of recent and old cases, it was seen that the recovery, discharges, and deaths, together with recent cases remaining, were much less than stated in the admission. Further examination showed, that at the end of each year those remaining in hospital which had become of more than one year's standing, were turned over to the department of old cases.

"By such a course, and rejecting deaths, paralytic and epileptic cases, and perhaps some others, from the aggregate, the cures of recent cases are very conveniently carried up to 90 per cent.

"It is probable, in some instances, this rejection and pruning away of exceptionable cases, might be carried so far, that 100 per cent. of recoveries, in recent cases, could be reported, and received with wondrous admiration by that portion of the public who are better pleased with marvellous fiction than with homely truth."

Notwithstanding our liberal extracts from this excellent report, we cannot well refrain from quoting the following remarks upon the moral treatment of the insane.

"As in a family, so in an Institution for the Insane, the head must be master of the inmates; but this control cannot be acquired over every individual by the same means.

"Kindness is undoubtedly to be the governing principle throughout. But here, as in all governments, an inefficient, tolerating course, may prove absolute cruelty.

"It is true of mental, as of any other malady, the remedies required are often distasteful and offensive, and to neglect their application on that account would be a most flagrant dereliction of duty.

"Repression and coercion may be as necessary to restrain the waywardness and unbridled violence of a maniac, as a surgical operation to preserve the life or limb of one requiring such treatment. There is no less proof of kindness in the one case than in the other.

"To connive at, or acquiesce in delusions, would be to confirm them, and would often diminish the chance of recovery. To attempt to dissipate them by arguments would be as objectionable; but the use of such physical and moral remedies as serve to divert or even distract the mind from its false pre-occupation, may do much good, though such means may be more or less painful to the individual, and decidedly opposed to his wishes."

2d. The number of patients in the New Hampshire Asylum for the Insane, May 31st, 1847, was as follows:—

	Male.	Female.	Total.
Whole number of patients	52	48	100
Admitted during the year	51	41	92
Whole number during the year	103	89	192
Discharged and died	46	37	83
Remaining June 1st, 1848	57	52	109
Of the patients discharged, there were cured	19	10	29
" " " " died	4	4	8
Whole number of admissions since asylum opened			546
do. do. recovered			179
do. do. died			31

The institution is in a flourishing condition, and all its apartments devoted to patients, are now constantly occupied.

A considerable portion of this report is devoted to arguments in favour of keeping the chronic insane, as a general rule, in Asylums particularly intended for the treatment of mental diseases, rather than permitting them to be returned to poorhouses and prisons.

In reference to that clause in the law of the state which empowers the probate judges to commit to the Asylum any Insane person "who is in such a condition as to render it dangerous that he should be at large," Dr. McFarland very properly remarks that "experience of the most painful kind has repeatedly taught the lesson, that it is by no means those whose mental manifestations exhibit the most insanity who are most dangerous to be at large." No statute authorizing the confinement of the insane, should be expressed in such terms, since, if it be literally construed, a very large proportion of persons suffering under mental disease would not come within its scope.

The following remark occurs in that portion of the report devoted to the discussion of the value of statistics. "As tables made up from the records of Institutions for the Insane, are of use only as data from which may be deduced the relative value of different varieties of treatment, they lose much of their importance in view of the difficulties that environ all attempts at keeping such records with even tolerable precision."

We quote this sentence simply for the purpose of objecting to the assumption with which it commences. The statistics of Institutions are, as a general rule, false data upon which to found an opinion of the relative value of treatment. There is such a diversity in the regulations for the admission and discharge at different institutions, and, to a considerable extent, in the character of the cases received, that one would fall into a gross error were he to attempt to judge of the treatment of the patients by a comparison of statistics.

3d. At the Massachusetts State Lunatic Hospital, the number of patients, on the 1st of Dec., 1846, was as follows:—

	Male.	Female.	Total.
Whole number of patients	200	167	367
Admitted in the course of the year	105	135	240
Whole number during the year	306	301	607
Discharged	116	97	213
Remaining, Nov. 30th, 1847	207	187	394
Of the patients discharged, there were cured	48	55	103
" " " " died	18	12	30

Causes of Death.—Marasmus 3. apoplexy and palsy 5, epilepsy 5, consumption 4, disease of heart 1, suicide 2, lung-fever 1, dysenteric fever 1, diarrhœa 3, gastric fever 2, exhaustion 2, convulsions 1.

	Male.	Female.	Total.
Patients admitted from 1833 to 1847, inclusive	1433	1390	2823
Discharged recovered	621	674	1295
Died			243

This Institution is always "full." and we were about to say, always being enlarged. "At no time in the year," says the report, "have we had a spare room. Twenty-six, on an average, more than our whole number of rooms, have resided with us throughout the year."

The system of moral treatment is, as it always has been, liberal and effective. Besides other means, a school for the patients was in operation in the winter. "Enough was done," says Dr. C., "to satisfy us that a school for the Insane was practicable, and might be made useful to many. Some information could be obtained, and the minds of those who could be made interested in the business, would be kept active, and drawn off from their delusions for the time."

This report contains an interesting table, showing the average duration of life, after becoming insane, of 219 patients, who have died in the hospital. The average duration, in 121 males, was 4 years, 10 months, 2 days; in 98 females, 4 years, 3 months, 12 days; and in both sexes, 4 years, 7 months, and 5 days.

It is comparatively but a few years since it was thought, that about one in each thousand of the population was a fair estimate of the proportion of persons insane and idiotic. Dr. C., in this report, says, in reference to Massachusetts,—"it is safe to predict, that an accurate census of the insane and idiots who are incapable of taking care of themselves, would show that there are as many as four to every thousand of the inhabitants of the commonwealth. And such, too, I believe to be the melancholy fact, in regard to their proportion in the neighbouring states."

4th. At the New York State Lunatic Asylum, the number of patients on the 30th of Nov., 1846, was as follows:—

	Male.	Female.	Total.
Whole number of patients	187	187	374
Admitted during the year	219	209	428
Whole number	406	396	802
Discharged and died	175	155	330
Remaining Nov. 30th, 1847	231	241	472
Of the patients discharged, there were cured	102	85	187
" " " " died	27	21	48

"Seven died of consumption, 7 of general paralysis, 6 of epilepsy, 8 of diarrhœa and dysentery, five—soon after admission—from exhaustion, following great excitement and the fatigue of the journey, 4 from apoplexy, 4 from marasmus, 2 by suicide, 2 by inflammation of the brain—a few days after reception, 1 by effusion on the brain, 1 by pneumonia, after profuse menorrhagia, and 1 from disease of the heart."

Whole number of patients, from Jan'y 16th, 1843, to Dec. 1, 1847	1,609
Discharged, including deaths - - - - -	1,137
Recovered - - - - - - - -	640
Died - - - - - - - - -	114

Dr. Brigham refers as follows to a peculiar form of mental disease which, to use a homely but expressive phrase, has *bothered* other physicians as well as himself. It would, perhaps, be better for the patients attacked with this disorder, that they should not be removed from home; yet it is very difficult, unless one has had much experience, to discriminate between this and ordinary insanity.

"There is a kind of inflammation of the membranes of the brain, accompanied by derangement of mind, that is, we think, often mistaken for mere insanity. It usually assumes the form of maniacal excitement, sometimes preceded by a short period of melancholy, or depression of spirits. Patients affected by it, are remarkable for the rapidity of their movements, incessant talking, and sleeplessness. The pulse is frequent, but not hard or full: the tongue is coated, and the eyes often slightly suffused. Such cases often prove fatal very suddenly: and after death the pia mater and the arachnoid membrane will be found considerably more vascular than natural, and occasionally, some effusion of serum will be observed. Death does not seem to result from inflammation,—but from the exhaustion and sinking of the vital powers, after long-continued excitement, agitation and sleeplessness. Bleeding in this disease is, we believe, always injurious, and probably no method of treatment will frequently be successful; but when it attacks, as it most frequently does, females who are delicate and feeble, or men whose constitutions are impaired by intemperance,—stimulants, with seclusion and quiet, will sometimes effect a cure."

With the subjoined observations upon blood-letting in insanity, as that disease is presented to the officers of public institutions, it is believed nearly, if not quite, all of those who have the medical direction of Asylums, will fully coincide.

"The treatment of insanity by bleeding, though strongly recommended by Dr. Rush, and some others, we believe to be generally improper, and frequently very injurious. Sometimes, as we have stated, it appears to produce a fatal result, and we are confident that it not unfrequently renders cases incurable. Some physicians appear to consider great maniacal excitement, vociferation and violence, as sufficient evidence of inflammation to have recourse to general bleeding; but, as we have said, this is usually a sad mistake. So frequently have we seen bad results from bleeding copiously in the commencement of insanity, that we are strongly inclined to limit the resort to it, to those cases that occur suddenly, in robust persons, with a hard or a full, strong pulse, redness of the eyes and face, and other well-marked symptoms of inflammation of the brain, or its membranes. *No regard whatever should be paid to the mere excitement and violence of the patient, as furnishing indications for bleeding.*

"That bleeding is sometimes serviceable and necessary at the commencement of insanity, we do not doubt; but of this we are confident, if a patient actually requires bleeding, in consequence of the inflammation of the brain or its membranes, then he requires to be kept still, and will be greatly injured by travelling. * * * * When, however, sufficient time has elapsed, after a person becomes deranged, to render it evident that the case is one of insanity, unaccompanied by acute disease, then, we think, as a general rule, the sooner he is removed from his home to an asylum, the better."

The system of moral treatment at the Utica Asylum, is very elaborate, the forms of occupation various, and the other means and facilities as diversified as, perhaps, at any institution in the country. Within the last year or two, theatrical exhibitions have been introduced. "These performances," says the report, "are held in one of our long halls, which, being very wide and high, with rooms each side, is admirably adapted for such exhibitions. A handsome drop-curtain has been painted by a patient, representing a view of the Coliseum at Rome, with gladiators in front, and in contrast, a view of our Asylum, with ladies dancing and promenading near it. A large number of patients, with resident officers, attendants and assistants, have attended these exhibitions, and occasionally, the managers of the asylum with their families, and a few ladies and gentlemen from Utica, have been present, and been much interested and surprised at the good order and ability exhibited.

"No evils whatever have resulted from our schools, exhibitions and the other mental exercises which we have mentioned; but, on the contrary, much good has been the consequence. They have interested and benefited us all—the officers, assistants and attendants, as well as the patients themselves; and served to make a residence here more pleasant and useful to us than it otherwise would be. It has ever been our policy to make the asylum the *home*, and the chief place of interest for all in our employ; and among our large number of patients are always many individuals of education and ability, who, when convalescent, are very willing to unite in contributing to the improvement and enjoyment of all."

Extensive additions to the buildings of this asylum have been completed during the past year, and the apartments thus supplied are rapidly becoming occupied.

5th. Agreeably to an ordinance of the Common Council of the city of New York, passed in the autumn of 1847, the Lunatic Asylum on Blackwell's Island has been relieved from its official dependence upon the Almshouse, and made, so far as the management of its patients is concerned, an independent institution.

According to the report before us, the number of patients on the 1st of January, 1847, was as follows:—

	Male.	Female.	Total.
Whole number of patients - - -	171	212	383
Admitted during the year - - -	201	195	396
Whole number during the year - -	372	407	779
Discharged and died - - - -	212	203	415
Remaining January 1st, 1848 - -	160	204	364
Of those discharged there recovered - -			194
" " " died - -	79	74	153

Of the cures, 47 were cases of delirium tremens.

Causes of Death.—"General debility 25, dysenteric diarrhœa 33, chronic diarrhœa 26, apoplexy 2, congestio cerebri 12, epilepsy 10, dry gangrene 1, paralysis 4, chronic bronchitis 1, erysipelas 1, phthisis 25, intussusceptio 1, organic disease of heart 2, ramollissement of the brain 1, feb. typhoid 6, old age 3."

"The number of deaths," says the report, "has been large. Various causes have been operating to swell the table of mortality. This Institution, connected, as it is, with the Almshouse Department, becomes the receptacle of many incurable patients, who are sent here to remain until death puts an end to their sufferings.

"If the incurable insane alone were sent here, the cause of complaint would not be so great; but there are many cases of febrile delirium, resulting from other diseases, which are sent to the asylum expressly to die. Few diseases terminate in death without affecting the mental faculties, and to the casual observer may be mistaken for mania. A little attention to the previous history of the case is necessary to distinguish the one from the other. 'Mania exists alone and independent of any other disorder, while delirium is only an unessential symptom of some other disease.' Some cases of febrile delirium have died within a few hours, and many during the first week after admission. During the past summer, there have been received five cases of ship fever, in the early stage of the disease, properly attested as being genuine insanity, showing conclusively the careless manner in which examinations for commitment are occasionally made.

"Another cause for the large number of deaths has been on account of the prevalence of ship fever."

"During the year 1846, but seven patients were transferred from Bellevue to this Asylum, while during the past year, fifty-nine have been received from that place, and the almshouse on Blackwell's Island. Many of these patients were suffering from the effects of ship fever, which had left them in a state of extreme debility, complicated with diarrhœa, and a large proportion of the number died.

"The principal acute diseases have been dysenteric diarrhœa, and feb. typhoid (ship fever).

"Of the last-mentioned disease there have been thirty-four cases, occurring among patients who had been in the Institution a long time, and for this reason treated here, of which only six died."

We have thus quoted in full the explanation given by the report for the enormous bill of mortality during the year. Without doubt, the number of deaths has been, to some extent, improperly increased from the sources to which this explanation alludes. But, after all, the grand cause for this startling fatality has not been even hinted at in the attempted explanation. This cause is the improper treatment of the patients—improper, in crowding them together in such numbers that two or more occupy the space sufficient only for one—improper, in giving them neither sufficient exercise nor a diet so nutritious as the preservation of their health requires—improper, in not supplying them with sufficient attendants, either of nurses or of medical officers.

In the spring of 1847, the writer of this notice visited the Institution in question, and passed through one of its male wards, itself damp and dirty, where the patients were so numerous, standing, sitting, and lying upon the floor, that he was obliged to *thread* his way among them, *and yet they had not been out of doors during the whole winter.* Their personal appearance was as wretched as was their position. *There* is the secret of the long roll of deaths. *That* accounts for the upwards of one hundred fatal cases included under the four heads—"general debility," "dysenteric diarrhœa," "chronic diarrhœa," and "phthisis."

In regard to the alleged want of attendants, the report itself bears testimony so far as relates to the nurses.

"There are only five regular attendants for the whole number of inmates.—*Each attendant has from seventy-five to eighty patients in charge*, assisted by prisoners from the penitentiary.

"At the commencement of the year, there were nineteen of this class (prisoners) in the various wards, but the number was gradually diminished, so that, for the last six months, only nine have been employed, and those principally in keeping the rooms in proper order. It is unnecessary to remark that these prisoners are wholly unfit to have in charge the insane; they cannot be made to comprehend that kindness is to be the restraining power. Since the number was diminished the patients have been more quiet, and better order has prevailed in the halls, as lunatics who are convalescing make better assistants than Penitentiary *help.*"

We would here enter into more details in relation to this Institution, were it not that the report next to be noticed will continue the subject before us. It is due to Dr. Ranney to state that, during almost the entire year, the history of which is included in his report, he was a subordinate officer, subject to the direction of the superintending physician of the almshouse.

6th. According to the ordinance already mentioned, by which the government of the asylum on Blackwell's Island was rendered independent of that of the almshouse, four physicians were to be elected to act, in rotation, as visiting medical advisers. Drs. Williams, Macdonald, Ogden and Earle were appointed to this office by the Common Council in October, 1847; but in the early part of 1848 the last-mentioned resigned.

The report before us is dated March 16th, 1848. After giving an historical sketch of the measures for the relief of the insane paupers of New York, it proceeds with an account of a visit to the Institution, made by the visiting physicians in company on the 25th Nov. 1847. From this we are constrained to make a liberal extract for the purpose of illustrating *the results of making the offices in public Institutions a part of the spoils to be gained by political partisanship.*

"We found 375 patients under the care of one resident medical officer, who, in addition to his strictly professional duties, had to act as apothecary.

"The only portions of the original plan of building finished (the north octagon and the north-west wing), were found not only fully occupied, but crowded. The first and second stories of the wing, (the only parts primarily designed for the occupancy of patients.) if they had not been crowded, would have been considered comfortable. The ceilings are high, the main halls cheerful, the rooms opening into them on either side ample for single patients, and the whole, excepting the small cells at the west end, for disorderly patients, were cleanly and in good order. Both these stories were occupied by females. The basement or ground floor, originally destined for store rooms, &c., was found occupied by men, damp, ill-ventilated and gloomy. *Many of the inmates were consequently sick with dysentery, diarrhœa or fever*, several years' experience having fully demonstrated, what was anticipated, when the building was first planned—that its basement is decidedly unhealthy. *Most of the cases of fever and diarrhœa which have prevailed at the Asylum. originated here;* and when the present resident physician first took charge of the Institution, he found no less than 25 or 30 patients suffering under scurvy."

"The Asylum, though generally well built, shows a want of attention to repairs, which no judicious house owner would consider it good economy to permit. In well-arranged asylums, it is considered necessary that the patients of each distinct class should have an airing-yard, to which they may resort at all times during the day, without hinderance. There are no yards attached directly to the asylum on Blackwell's Island, but there are two small enclosures, at the distance of about two hundred and fifty feet from the Asylum, surrounded by a fence ten feet high, which effectually cuts off the fine views for which this part of the island is remarkable. To remedy this, a platform was erected in each yard nearly as high as the fence, which the patients might mount and enjoy the prospect, but this has now become so dilapidated as to be quite useless. The patients are taken by their keepers into these enclosures, locked up, and left to themselves, without occupation or amusement, and without the ability of looking upon one of the most beautiful scenes that can be found in the vicinity of New York. From these places they are conducted back as they were taken out, and confined to the house. In the finest weather, it cannot be supposed, with the limited* number of keepers, that the patients can enjoy even this poor recreation more than twice a day, while in cold and stormy weather they must be entirely deprived of it.

"The building known as 'The mad house,' standing on the water's edge, about 150 feet east of the Asylum, was found considerably out of repair, badly adapted to its purpose, unmeasurably crowded. imperfectly ventilated, and extremely offensive. This house, which is about 36 by 80 feet, and three stories high, *not much larger than an ordinary three story dwelling, contained no less than* 113 *patients!* The first floor was appropriated *to men, of whom* 19 *were white and* 12 *coloured, total* 32. The second and third stories were occupied by *women, of whom* 78 *were white and* 3 *coloured, total* 81. For this number of patients, there were 24 cells on the second and 18 on the third floor, *making about two occupants for each cell of* 4 *by* 9 *feet*. The water closets of each story had no head of water to carry off their impurities, and were consequently very offensive. For this large number of patients there were found no airing yards. The two which had been originally prepared, being miserably small and without prospect, had become so dilapidated as to forbid their use. After examining this part of the establishment, we could not but agree that its name 'Mad House,' was well applied, for there was *madness* in its conception, *madness* in its completion, and *madness* in its continuance. It was certainly more full of *madness* and better calculated to perpetuate *madness* than any house we have ever examined. * * * *

"If the condition of the house itself were unsatisfactory, that of its inmates was much more so. The first visits of inspection were among the most painful duties of our lives. Notwithstanding the faithful exertions of the resident physician, idleness and confusion seemed to pervade the establishment. Three hundred and seventy-five patients, eight or nine-tenths of them being incurable, were confined in a space not too large for two hundred, without regular treatment, occupation or classification. They were accumulated in large numbers in the halls and lobbies. In one place, the floor was covered with them; in another, which was a small passage, warmer than the rest of the house, and about 16 feet long by 3 or 4 wide, we saw 25 women sitting or lying on the floor, and almost covering it, and in an adjoining cell of the smallest size, 3 or 4 more in the same posture. We observed in the basement, a number of men confined to their beds with fever and diarrhœa, their rooms badly ventilated and offensive: in the 'Mad House,' 113 crowded into a space not large enough for half the number, 14 confined to cells, 3 or 4 restrained by iron hand cuffs, and one with a strait jacket; there being only one penitentiary convict to take charge of 32 men, and one woman to manage 82 female lunatics, with no yard for exercise or change of air; but all confined to the house; all idle, some excited and noisy, singing, chattering, or raving; others moping and listless, reminding us of the descriptions of mad houses in the last century, and in countries not yet enlightened by Christianity and civilization. The air of this house, particularly of the upper story, was very offensive. The beds throughout the whole establishment were of straw, and not sufficiently covered, most of them having but a single blanket. The patients were confined in the yard of the main building, without prospect, object, occupation or amusement; and without any attendant constantly present to supervise them; some lounging or walking about, others lying or sitting on the ground, some bare-footed, and many ragged.

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* "To show how much the Asylum stands in need of suitable nurses and attendants, it may be mentioned that the resident physician has detained 20 patients, after their recovery, to do the work of the house, rather than employ prisoners."

"But that which struck us most forcibly, was the idleness that pervaded every part of the establishment. Idleness in the sane, all will admit, leads to vice: with the insane it tends to the worst consequences. Man permanently deprived of reason, and impelled only by his animal instincts, uniformly degenerates, unless guided and sustained by the intelligence of others. Lunatics assembled together in large numbers, and neglected or maltreated, form the most painful of all human spectacles; but if properly treated and occupied, may be made agreeable and even useful members of society.

"In thus expressing ourselves frankly with respect to the state of the Asylum as it was found in November, we do not wish to be considered as attaching blame to the resident physician, who, we believe, did all he could, with the means in his power, for the good of his patients. We throw the blame on the imperfect organization of the whole establishment; the want of room, the absence of classification, the deficiency of attendants, male and female; in fine, the destitution of all those aids and conveniences which the superintendent of every lunatic asylum requires, for the satisfactory performance of his duties."

The fact here related requires no comment.

The report proceeds with an argument showing the importance of a more liberal expenditure for the support of the Asylum, and concludes with a series of *recommendations* for the general improvement of the institution. Whether these will ever be heeded or not remains to be seen. The attending physicians and the superintendent have already done much towards ameliorating the condition of the patients, and the aspect of the establishment has been greatly improved since the new organization of the official department went into operation.

7th. The number of patients at the Bloomingdale Asylum for the Insane on the 1st of January, 1847, was	131
Admitted during the year	143
Whole number during the year	274
Discharged and died	129
Remaining December 31st, 1847	145
Of the patients discharged, there were cured	58
" " " " died	13

"Five of those who died were alarmingly ill when they were received, and neither of them lived more than fifteen days after admission.

"Of the admissions, thirteen were cases of delirium tremens and habitual inebriety, and twelve of the cures were of the same class.

"The number of patients," says the report, "is now and has been throughout the summer and autumn, as large as the Institution will accommodate consistently with comfort and judicious management."

8th. At the Pennsylvania Hospital for the Insane, the number of patients on the 1st of January, 1847, was	161
Admitted during the year	240
Whole number for the year	401
Discharged and died	213
Remaining 31st December, 1847	188
Of the patients discharged, there were cured	111
" " " " died	29

"Of these cases of recovery," says the report, "one had been insane nearly eight years, and had been an inmate of this Institution nearly six. This fact is noticed here, not only on account of the very pleasant and unexpected result in a valuable individual, but as encouragement for perseverance by the friends of patients. It was one of the class of cases where, even with the most unfavorable train of symptoms, it is not possible to say, with entire certainty, that the individual is incurable. The occasional occurrence of such cases is among the strongest arguments against Institutions for the supposed incurable alone, and teaches how very important it is, that the chronic insane should always be kept surrounded by everything that would seem to offer any aid to their restoration."

Dr. Kirkbride, like some other physicians occupying similar situations, is subjected to the annoyance of seeing some of his patients prematurely removed from under his care. The number thus taken away during the past year is twenty, of whom it is supposed that ten would have recovered had their treatment not been interrupted.

	M.	F.	Total.
Whole number of admissions from 1841 to 1847 inclusive	663	513	1176
Discharged or died	566	422	988
Of which there were cured	298	215	513
" " " died	62	51	113

We have, in some Medical Journal, seen it asked whether the blind ever became insane? and recently a similar question has been asked in reference to the deaf and dumb. The following extract from this report will answer both of these queries.

"A gentleman, of great private worth, and distinguished for his scientific acquirements, but deaf and dumb from birth, after laboring for many months under unequivocal symptoms of mental derangement, was compelled to enter the Hospital; and a young lady, blind, at least from early infancy, having an acute attack of mania, has been among the number of our patients. A still more striking combination of afflictions, however, occurred some time since in a boy, whom the writer had had occasion to see frequently, and whom, at one time, it was proposed sending to this Institution, who, blind from birth as believed, subsequently lost his hearing completely, then the power of speech, and after some interval, unmistakeable indications of insanity were manifested, by acts of the most violent and singular character."

At the Bloomingdale Asylum, New York, there is now a young man, who is deaf, dumb and insane, and within the last four years there have been two blind persons among the patients; in one of them, however, and perhaps in both, the blindness was not congenital. One of the men patients, who was about three years ago an inmate of the same Institution, had two deaf mute sisters who were insane.

The following remarks of Dr. K. are from that section of the report devoted to moral treatment.

"As already remarked, we still have occasional musical and social parties for patients of both sexes, but less frequently than formerly—the lectures and exhibitions being found to be an excellent substitute, and I am disposed to believe, upon the whole, much more useful; although the former, held occasionally, make a pleasant variety. The lectures and exhibitions enable patients to pass the time pleasantly, give them some mental employment, with an opportunity of acquiring useful information, and without any risk of undue excitement. It is not always easy, in a large and indiscriminate assemblage of patients and attendants, to promote exactly the degree of hilarity and excitement that is useful or desirable. Cheerfulness is at all times to be desired in a hospital for the insane, but levity is neither useful nor becoming in such a position, and some well-disposed persons do not seem able to discriminate between them. Any kind of assemblage that produces much excitement or undue levity of behaviour in those participating in it, is, as a general rule, objectionable and hurtful in such an institution."

For some years past it has been a favourite idea with some of the physicians connected with institutions for the insane, that the construction of small cottages, detached from the main buildings of an Asylum, would improve the establishment by thus affording quiet and secluded accommodations for such as could appreciate them. Dr. K. has at length succeeded in carrying this plan into execution, by the construction of a building, one story high, forty-six feet long, by twenty-five wide, with a piazza or portico seven feet wide, extending the whole length of its front. It contains a parlour twelve by fifteen feet, two patients' rooms, fourteen by fourteen feet, and two rooms for attendants seven and a half by fourteen feet: the ceilings are twelve and a-half feet high. "All the windows have inside shutters, the floors are neatly carpeted, the whole is furnished in good style, and has the air of a neat and comfortable private residence."

Dr. K. does not appear to think that it would be judicious greatly to multiply this class of buildings, and in connection with the subject makes the following remarks:—

"Although a limited number of patients, *much fewer than is generally supposed*, would really be benefited by being accommodated in detached cottages, and while the feelings and means of the friends of others might make such provision an essential element of their coming to a hospital at all, still it scarcely admits of a doubt that the great majority would derive no advantage from such an arrangement, and that they would really do better, be more comfortable, and probably recover sooner in regular wards, where the classification and discipline are good, and the attendance of the best kind."

9th. At the Ohio Lunatic Asylum the number of patients, Nov. 15th, 1846, was as follows:—

	Male.	Female.	Total.
Whole number of patients - - -			291
Admitted in the course of the year - -	90	91	181
Whole number during the year - -			472
Discharged and died - - -			143
Remaining Nov. 15th, 1847 - - -	167	162	329
Of the patients discharged, there were cured -			90
" " " " died -			23
Whole number of cases admitted in nine years	551	496	1047
Whole number discharged recovered -			448
" " " died -			115

Causes of Death.—Inflammation of the liver 1, dropsy 4, inflammation of the brain 4, fever 10, apoplexy 5, consumption 15, palsy 6, epilepsy 16, marasmus 14, diarrhœa 13, dysentery 13, inanition 9, atrophy 4, erysipelas 1.

In reference to recoveries at different periods of life, Dr. Awl, after quoting the opinion of Esquirol and of Burrows, says: "Recoveries are unquestionably most numerous between the ages of twenty and thirty, because at that period we have the largest number of admissions, at least on this side of the Atlantic. But according to our statistics, now extending beyond one thousand cases, the *per cent.* of recoveries is certainly greatest in those who exceed the fortieth year. And we find a similar conclusion in the published records of the State Lunatic Hospital in Massachusetts."

The fact here asserted is interesting, and will probably elicit farther observation upon the subject. Is it not probable that among the patients over forty years of age there are more cases of second attack or recurrent insanity than among those who are under that age? We should feel better satisfied if the per centage of *persons*, rather than of *cases*, was given.

During the past year an additional building has been appended to this Asylum.

"It is one hundred and fourteen feet long, thirty-six wide, and three stories in height, and contains a washhouse, ironing and drying rooms, a bakery, an engine-room, sundry sleeping apartments for assistants, and a chapel.

This Institution has always been ably managed and deservedly ranks among the best in the country.

10th. The statistics in the report of the Lunatic Asylum of Tennessee, include a period of two years. The number of patients at the commencement of that period was as follows:—

	Male.	Female.	Total.
Whole number of patients - -	32	17	49
Admitted in the course of two years -	36	15	51
Whole number - - - -	68	32	100
Discharged and died - - -	24	12	36
Remaining Oct. 1st. 1847 - -	44	20	64
Of the patients discharged, there were cured	31	7	20
" " " " died -	4	2	6

"Three or four of those patients noticed in the foregoing statement as having been *discharged cured*, are yet within the Institution, awaiting their removal at the hands of their friends."

This Institution has been in operation several years, but so far as we can learn, it has ever been and still is almost entirely devoid of all those means and appliances for physical comfort and for moral treatment which are now considered essential to a respectable Asylum for the Insane. It would appear to be a mere house of detention, rather than a curative Hospital, and that, aside from purely medical treatment, the patients who recover must have got well in spite of their situation, rather than as a consequence of it. As proofs of this supposition we make the following extracts from the report.

"The whole of the building is not more than adequate for the accommodation of forty-nine patients. The number has at times exceeded sixty, and at present consists of about that number (as appears by the above statistics there were sixty-four). The number of male inmates at this time is forty-six (according to the statistics forty-four), whilst there are in that wing of the building set apart for their use, but twenty-one rooms. Hence the impossibility of so classifying and arranging them that each may receive the treatment best adapted to his case. * * * * The means at the disposal of the Institution only enable it to employ two male attendants and one female. It must be obvious to any one that such a number is wholly inadequate to the proper discharge of the duties devolving upon them."

"I beg leave," says Dr. M'Nairy, "to reiterate the observations made in my former report, in relation to the use of cells, for the confinement of furious maniacs. Those belonging to this Institution *being under ground, and not susceptible of ventilation*, are wholly unfit for the habitation of human beings; and even supposing them to be of value, as places of temporary confinement, they are, nevertheless, utterly useless for any remedial purpose."

" * * * * * * *During a considerable portion of the year we have not water even to drink, to say nothing of the large quantity wanted for culinary and other purposes.*

"The undersigned (Dr. M'Nairy) also feels it his duty, in as emphatic a manner as he can, to call attention to the *utter absence of all means in the institution of indulging the patients in any healthy and innocent amusements and recreation.* Confinement here may be set down as little better than solitary. The patient is secluded from the world, debarred access to everything calculated to remind him that life still has pleasures, and society its allurements, and in fact, the dull and monotonous existence led within our walls, *is calculated rather to canker and craze the sane mind, than to restore to sanity that which was already sunk under its trials.*"

It would not be necessary to adduce farther evidence in proof of the utter unfitness of this receptacle as a curative establishment for the insane. It cannot be that an Institution so devoid of the means for accomplishing its end will long be tolerated. Dr. M'Nairy proposes that the present buildings be abandoned, and that new ones be erected at some place where all the modern improvements can be introduced. The legislature of the state, if properly enlightened upon the subject, will undoubtedly authorize this plan to be put into execution.

11th. The report of the Lunatic Asylum of the State of Georgia includes a period of two years, ending on the 25th of October, 1847. At the beginning of this term the number of patients, according to the statistics given in the report, appears to

have been	60
Admitted in the course of two years	71
Whole number	131
" Discharged"	22
" Eloped"	6
" Died"	27

The number of cures is not stated, and the only remark we find in the report, in reference to the subject, is as follows:

"The number of our patients restored, has been, in proportion to the whole number in the Institution, small; but in proportion to the cases that can be regarded as curable at all, it is, in view of all the circumstances, quite equal to any reasonable expectation."

"The number of deaths," says Dr. Green, "during the past two years, (three of which occurred prior to my taking charge of the asylum,) would be likely to strike one uninformed in relation to the nature of the cases, as disproportionately large, but such will inevitably be the result in the earlier years of any institution, where all classes and conditions are received, and where, from the influence of a variety of causes, a large number are sent to the Asylum, only because they have become mentally and physically a burden too intolerable to be longer borne; and one-half of the deaths were cases of epilepsy, a disease rarely ever cured, and the combination of lunacy and epilepsy, never. Many are positively *in extremis* when brought to the Asylum, and have not survived a month."

The means for classification and moral treatment seem to be still deficient at this Asylum. Improvements, however, have been made since the present zealous and efficient superintendent was appointed, and under his care it may reasonably be expected that the Institution will flourish and assume a higher rank than it has hitherto sustained.

12th. For several years past, Dr. Edward Mead, a professor in the Medical Department of Illinois College, has taken an active interest in the condition of the insane in that State. He ascertained that there were about three hundred persons in the State who were suitable subjects for an institution devoted to the treatment of mental diseases, delivered an address upon the subject to the people of Jacksonville, made an appeal to the governor and physicians of the State, and presented a report, at the request of a select committee of the Senate, to that branch of the Legislature. These efforts, together with those of Miss Dix, resulted in a legislative act authorizing the establishment of a State Hospital for the Insane. Dr. Mead also concluded to carry out an intention which he had entertained for several years of establishing a private institution of a similar kind. He accordingly opened a temporary establishment, at Chicago, and received the first patient in August, 1847. At the time of the date of the report (Feb. 1848), fifteen patients had been admitted. Of these, five had been discharged cured, one had died, and nine remained:

"The site selected for the permanent edifice comprises twenty acres of land, situated two miles north of the city, and half a mile north of the lake shore. The edifice will be an elegant and commodious structure, built of stone, in the Norman Gothic style of architecture, and in its interior arrangements adapted to the peculiar wants of the insane. When completed it will be sufficiently capacious to accommodate 130 patients. A part of this permanent edifice is expected to be in readiness for the reception of patients early in the ensuing spring.

No report has hitherto emanated from the Butler Hospital, at Providence, R. I., or the State Lunatic Hospital, at Trenton, N. J., both of which have been opened within the past year.

P. E.

Art. XX.—*Medical Chemistry, for the Use of Students and the Profession: being a Manual of the Science, with its applications to Toxicology, Physiology, Therapeutics, Hygiene, &c.* By D. P. Gardner, M. D., formerly Professor of Chemistry in Philadelphia College of Medicine. 1 vol. 12mo. pp. 396. Philadelphia: Lea & Blanchard, 1848.

Manuals and Systems of Chemistry have been offered to the profession in sufficient numbers to suit the tastes of all, but a strictly medical chemistry has yet been a desideratum. To fill this void, and to direct attention to the intimate connections between chemical and medical science, has been the endeavour of the author in the production now before us. In a work comprised within 400 duodecimo pages, it cannot be expected that the whole of these relations should be embraced, or that minuteness of detail could be admitted, even in those portions which the author has conceived to be of most importance. Accordingly, we find that the chemistry of the metals occupies but a small space, while that of organic compounds comprises nearly one-third of the whole work. Commencing with the imponderables, the author gives a succinct and clear account of the laws and phenomena exhibited by this class, interspersed with occasional illustration and application, interesting and important to the physician and student, and concludes each division by a general application to the different branches of medical science. Caloric thus has its laws unfolded; and then the relations of heat to climate, to animals and plants, to man, and to therapeutics, pass in review; and its important connections not only with health and disease are pointed out, but with animal and vegetable organization and nutrition, together with its application as a remedial agent, and the principles on which it acts. The same remarks apply to light and electricity, in which the latest observations of Matteucci and others, and their views with regard to the physiological relations, are noticed. The general laws of chemistry are considered with more detail. Constantly keeping in view the relations to medicine, the subject of isomorphism gives rise to comments on the agreement in therapeutic action of compounds similarly constituted, with reference to experiments confirmatory of the remarks; while catalysis affords a similar opportunity, in relation to morbid and therapeutic actions. Most of the non-metallic bodies, together with arsenic and antimony, and their more important compounds, are noticed with sufficient detail, for the appreciation of their relations to physiology, toxicology and hygiene, avoiding for the most part such subjects as are especially to be found in all works on general chemistry and the materia medica. Organic chemistry is treated not in its whole extent, but by a judicious selection of subjects, and their relations to vegetable and animal physiology, embodying the results of the latest German and French investigations, up to the time of its publication, presenting in a clear and connected manner, an interesting survey of the science, and rendering appreciable the great advance which has been made within a comparatively short period. In closing these remarks, we would suggest to the author, that, in the next edition, notes be appended to the most recent investigations, referring to their sources, that the student may be enabled to acquire in detail information not yet familiar to all. The subject of ventilation, with its relations to hygiene and therapeutics, although it has attracted considerable attention, is yet but inadequately appreciated or understood, and would form an appropriate subject in connection with the remarks on the atmosphere, without much increase in the bulk of the volume.

The mechanical execution of the work is creditable to the publishers, the paper good, the type clear and sufficiently large for the size of the work. R. B.

ART. XXI.—*A Dispensatory, or Commentary on the Pharmacopœias of Great Britain and the United States, comprising the Natural History, Description, Chemistry, Pharmacy, Actions, Uses and Doses of the Articles of the Materia Medica.* By ROBERT CHRISTISON, M. D., V. P. R. S. E., &c. Second edition, revised and improved: with a Supplement containing the most important new Remedies, with copious additions, and two hundred and thirteen illustrations. By R. EGLESFELD GRIFFITH, M. D., &c. 1 vol. 8vo. pp. 1008. Philadelphia: Lea & Blanchard, 1848.

THIS American reprint of the extensive work of the eminent Scotch pharmacologist, like its two congeners, treats copiously of the remedial agents embraced by the Materia Medica, and with the London and United States, constitutes the trio in the English language, designated as Dispensatories—now in full career of popularity. All three are professedly exponents of the several Pharmacopœias appertaining to the kingdom of Great Britain. The United States Dispensatory, however, has given prominence to our own authority, and made the others secondary, while in the original publications of London and Edinburgh, our standard is either altogether neglected, or but transiently referred to. The present edition of the work under consideration has the deficiency supplied by the labours of the editor.

We have always considered it extraordinary that, while three Pharmacopœias existed in Great Britain, and two of them possessed a peculiar advocate and exponent in the form of a Dispensatory, the remaining one, the Dublin, had not a corresponding accompaniment. Irish medical talent is certainly equal to the undertaking. In government, we are aware that English, Scotch and Irish policy, and schemes of national advantage, are widely different. This may be comprehended by reference to circumstances of a local character, and hereditary prejudices, and we are not disposed to discuss whether or no a moral difference exists, sufficient to give rise to modifications of law and equity: but that the disparity in physical traits is so decided as to call for a difference in the preparation of purgatives, diuretics, &c., appears to us an indubitable fallacy. One method of dosing might suffice for all, and the experiment ought at least to be tried, by framing a national British Pharmacopœia.

Christison's Dispensatory was first issued in 1842, and may be regarded as the successor to the New Edinburgh Dispensatory of Dr. Duncan—a work which began its career in the first year of the present century, and terminated with the eleventh edition, in 1826. This latter work also formed the basis of the American Dispensatory by Dr. Coxe, which commenced in 1806, and ended with the eighth edition, in 1830. The second edition of Dr. Christison's work, which is the one now published, has been enriched by such information as discovery in science has afforded within the past six years. It has been posted up to the present time, and thus again offered to the profession: in this country, with the additions of the American editor.

The first portion, termed the Introduction, is devoted to the processes of pharmacy. The principles of pharmacy are here succinctly laid down, and each form of exhibiting medicines clearly made known and discussed. Where chemical apparatus is required for the formation of particular preparations, a drawing of the utensil employed is frequently given. In this chapter, weights and measures are duly set forth and explained, and to it have been added by the editor, Dr. Griffith, a chapter on specific gravity, with ample tables of the density of various fluids and preparations; an exposition of thermometrical equivalents, with full tables exhibiting relations on the different scales, the effects of temperature, symbols, solubility of salts, and an explanation of terms used in prescriptions, from Gray's Supplement to the Pharmacopœias.

The Materia Medica proper commences in the usual way, the alphabetical arrangement being followed, which seems, time honoured, to be inseparable from a dispensatory. The information imparted under each head, is that found in the more recent treatises on the Materia Medica. Where articles are derived from the vegetable kingdom, the plants affording them are referred to their appropriate natural history position under classes and orders, but few botanical details are indulged in. Medical botany is of secondary consideration, and the author is no doubt impelled to this by the full instruction which Scotch students receive in that department, and the co-existence of the admirable treatise on the subject by Dr. Lindley. The account of drugs met with in the English market is clear and concise, and their chemical constitution correctly given, in accordance with the most recent analyses.

There are certain subjects to which Dr. Christison appears to have given especial attention; the chapters upon these are peculiarly rich with information. Conium is one of them, which by him has been experimented on. The test for the activity of this drug, which originated with the Edinburgh College, is invaluable, we mean that by liquor potassæ. Another of these is scammony. Dr. Christison's investigations into the purity of this drug, have presented the subject in its true light, and shown that the grossest impositions have been practised. Sophisticated scammony is most common in the English market, and by the author has been divided into three kinds, which are termed *calcareous*, *amylaceous*, and *calc-amylaceous*. The worst of the specimens contained by analysis 42·4 per centum of resin. Bad as these may be, they must be decidedly active when compared with the stuff designated as scammony, and sold as of *first quality* in the United States. One lot which was extensively distributed, and which during the past year fell under our observation, contained but 6 per cent. of resin; the basis of it was gum tragacanth. The moral sense of the drug-community must either be greatly depraved, or else extreme ignorance prevails in it, to tolerate such imposition. The recent act of Congress with regard to adulterated and spurious articles, will, we hope, aid and facilitate the exposure of all such imposition.

For the chemical examination of articles employed in medicine, we are indebted to European, and more especially, to continental experimenters. The rich reward of fame is justly due the chemists who have zealously and indefatigably laboured in this field of research; a few laurels, however, might be awarded those who in this country have manifested a similar spirit, and really have contributed their quota to the progress of analysis. We are prompted to this reflection from the examination of the article on Lobelia, in which not one word is mentioned of the researches of Mr. Procter, although he, at least ten years back, satisfactorily isolated the principle upon which the activity of the drug depends, and by a continued series of experiments since, has studied its characters and properties. His papers are published in the American Journal of Pharmacy. We might excuse Dr. Christison for such omission, but in the reprint justice should have prompted, as well as policy suggested, the completion of the chemical history.

Upon turning over the pages some slight errors are observable, as for instance, in attributing the Tahiti arrowroot to Tacca pinnatifida. Mr. Nuttall, several years ago, described the plant affording Sandwich Island arrowroot, and gave to it the name of *T. oceanica*, because so widely differing from the Asiatic species as to constitute a different one.

The Dispensatory issued on this side the Atlantic, differs from the original Edinburgh edition in the addition of numerous illustrations, which, with the specification of the processes of the United States Pharmacopœia, its nomenclature, and an account of indigenous products, constitute the labours of the editor. The book, then, is replete with valuable information; it is one of the standards of the day; and as such, must meet with the favour it deserves. J. C.

Art. XXII.—*Lead Diseases: a Treatise from the French of L. Tanquerel des Planches, with Notes and Additions on the Use of Lead Pipe and its Substitutes.* By Samuel L. Dana, M. D., L. L. D., p. 441. Daniel Bixby & Co., Lowell, 1848.

This most important and valuable work contains a great amount of information which is accessible to the members of the profession nowhere else, and which it is dangerous for them to be without. It is much to be regretted, that the original work of Tanquerel, with the observations of Dr. Dana, and of many physicians, both abroad and at home, had not sooner been made public, and urged upon the public attention in this country. But, better late than never. We are entirely satisfied, from our own experience and inquiries, that there is an immense and a daily increasing amount of disease in various parts of the country, the cause of which is overlooked or unknown, and which is occasioned by the poison of lead. With the light now shed upon this subject, it will be the fault and the blame of physicians, if this prolific source of suffering and ill health is allowed any longer, through ignorance or inattention on their part, to exist.

We do not propose to enter upon any systematic review of the work of Tanquerel and Dana, or to give any detailed synopsis of its contents. The late period at which it was received, if there were no other reasons, would deter us from either of these undertakings. But there are other reasons. The contents of the work are so multifarious as to defy any satisfactory analysis within reasonable limits, and they are so important that every physician is bound, by all the obligations of duty and of interest, to make himself thoroughly acquainted with them by direct reference to the book itself.

Tanquerel's treatise, in two volumes, containing about eleven hundred pages, was published in 1838. It received in 1841, from the Royal Academy of Medicine, the Montyon prize of 6000 francs. Dr. Dana says of his own volume, that it is both a translation and an abridgment. In condensing the original, he has aimed to give faithfully the meaning of his author, without confining himself to a simple rendering of his language.

The body of the work is divided into five parts, devoted respectively to the following subjects, to wit:—*Lead Colic; Lead Arthralgy; Lead Paralysis; Lead Encephalopathy;* and the *Preservative Treatment* of lead diseases. Fourteen elaborate chapters are given to the consideration of lead colic!

With these few preliminary remarks, we wish now to call the attention of our readers particularly to the subject of *lead pipe as a water conduit, in connection with lead diseases.* Dr. Dana's appendix of about seventy pages is mostly taken up with this subject, and it is this portion of his work which will at this time and in this country attract, as it deserves, the largest share of attention. From its cheapness and its admirable adaptation to this end, the use of lead pipe for the distribution and delivery of water for domestic purposes, in this country, has become almost universal; a great deal of this pipe is more or less acted upon by the water that passes through it. The amount of the solvent action of the water upon the lead varies very greatly in different circumstances; and it depends principally upon the quality of the water. When this contains certain salts in considerable quantity the solvent action is slight, or hardly appreciable, or it may cease altogether; under other conditions, as where the water is free or nearly free from salts, soft and pure, this action is energetic and constant In the former case, the action of the water upon the lead is prevented by the formation of an insoluble lining upon its inner surface. In this connection it is important to state that the results of experiment in the laboratory are not to be regarded as conclusive so far as the practical question is concerned; the action of the water may cease upon a short piece of pipe in the hands of the chemist, while it continues in pipe used for domestic purposes. The most common and efficient protective salts are sulphate and carbonate of lime.

Dr. Christison, after a careful investigation of the subject, comes to the following conclusions on the use of lead for transmitting water.

"1. Lead pipe ought not to be used for this purpose, at least where the distance is considerable, without a careful examination of the water to be transmitted.

"2. The risk of dangerous impregnation of lead is greatest in the instance of the purest water.

"3. Water which tarnishes polished lead. when left upon it a few hours, cannot safely be transmitted through lead pipes, without certain precautions. Conversely, it is probable, though not proved, that if polished lead remains untarnished or nearly so, twenty-four hours in a glass of water, the water may be safely conducted through lead pipes.

"4. Water containing less than about an 8000th of salts in solution, cannot safely be conducted in lead pipes without certain precautions.

"5. Even this proportion will prove insufficient to prevent corrosion, unless a considerable part of the saline matter consists of carbonates and sulphates, especially the former.

"6. So large a proportion as a 4000th, probably even a considerably larger proportion, will be insufficient if the salts be in a great measure muriates.

"7. In all cases, even though the composition of the water seems to bring it within the conditions of safety now stated, an attentive examination should be made of the water after it has been running a few days through the pipes, for it is not improbable that other circumstances besides those hitherto ascertained may regulate the preventive influence of neutral salts."

We have room now for only a single remark in regard to the forms of disease resulting from the poison of lead derived from lead pipes. This whole subject is comparatively new. There is reason, however, to think that the violent acute disease called *lead colic*, so frequently attacking workers in lead, and painters, is not so often the result of lead poisoning from water pipes, as *neuralgia* and *partial paralysis*. It is a matter deserving immediate and most serious consideration, whether the great increase which has recently taken place in the amount of neuralgic affections, may not be, in no small degree, dependent upon the use of lead pipe for the transmission of water for domestic uses. E. B.

Art. XXIII.—*Annuaire de la Mortalité Génévoise, Publié sur l'invitation du Conseil de Santé.* Par le Docteur Marc D'Espine, Membre du Conseil de Santé, Médecin de Prisons et de l'Institut des sourds-muets du Canton de Genève, Membre de plusieurs sociétés savantes. Annés 1844 et 1845; Genève, 1847. Brochure, p. 62.

Geneva can boast of a registration of the mortality, births, &c., of her inhabitants, extending farther back than that of any other city of modern Europe—even to the year 1549. The records of three hundred years are now a most valuable acquisition, affording the best possible means of drawing comparisons between different periods, and ascertaining the influences exerted through the improvements in civilization. The fact they demonstrate, of the great increase in the mean duration of life, is itself sufficient to show the great value of registration, so tardily adopted, and carelessly attended to, in other cities, especially those in the New World.—We learn from the Genevese records, that towards the close of the seventeenth century, the probable duration of life was not over twenty years; at the close of the eighteenth century it attained to thirty-two years, and at present it has reached forty-five years.

The report under consideration shows the refinement to which the system of registration has been brought in Geneva. It gives not only the sums of mortality, but the specific cause of each recorded death, with its general character and duration. The following few examples will illustrate the plan pursued.—*Février* 2*e*, *f*. 54. *Pneumonia gauche*, 15 *jours de maladie*. *Mars* 6 *m*. 63 *Pneumonie, base droite, mort en* 7 *jours*. *Juin* 44 *rm*. *Erysipèle de la face, mort le* 8*me jour* (*autopsie*), *meningée saine, cervelet ramolli*. *Setem*. 31, *pf*. *Grossesse, péritonite hémorrhagique, expulsion d'un fœtus de* 6 *semaines pendant la maladie* (*autopsie*), *péritonine plein de sang, pas de foyer hèmorrhagique evident.*

Through a system of abbreviations and signs, a line or two is made to show the most important information relative to each decease recorded. Thus, the figures following the date, indicate the age. If this sum is not followed by any letter, it signifies years; if followed by an *m*, or a *j*, or an *h*, it shows the months, days and hours. In a very few cases, where the age could not be indicated, ciphers were substituted. The letters *m*, or *f*, indicate the sex, whether masculine or feminine. Sometimes the sexual letter is preceded by an *r*, or a *p*, when it signifies that the individual was rich or poor. The deaths of citizens are distinguished from those of the country, by the letters indicating the sex and condition being placed perpendicular, whilst those for the country are in *italics*.

So much for the particular signs. The general arrangement admits, 1st, of a comparison of the whole number of deaths with the population. 2dly, a comparison of the deaths of the rich and the poor, from the city or country. 3dly, the law of mortality as influenced by months, seasons and different ages. 4thly, the mean duration of life at any given age, with the average mortality, &c. Meteorological observations, kept at the observatory, are attached, for the period of registration, together with statistical and topographical observations relative to the affairs and local condition of the canton. In conclusion, a series of supplementary notes afford more particular details in regard to certain cases included in the records, such as the nature of the accident, instrument or means of suicide, &c.

One of the most interesting points connected with the Genevese records of mortality, is the mode of establishing the accuracy of the details serving as the basis of the statements. The deaths, without any exceptions, are all certified to by physicians, not only the attendant, but those specially appointed to this duty by the Health Office. By these, notes, more or less extended, are made out, in regard to the deceased, and the morbid or accidental causes which led to death. These notes are examined every fifteen days by a medical board, discussed, and sometimes extended or modified. Even after all this, the note of registration is carried to the attending physician, who adds to it all the information interesting to record. This last duty is performed at the special request of Professor de Roches, dean of the medical faculty, at whose expense it is continued. What a commendable zeal in the cause of science is shown by this enlightened and liberal professor!

The classification of deaths adopted in this report, differs materially from that of the British Registrar General, and the one recommended by the American Medical Association. The general division is first into six principal classes or groups, namely, *still-born*, *external accidents*, *diseases*, *vices of organization*, *and old age*. There can be little diversity of opinion in relation to this general division of the causes of death. But when it comes to a more particular classification of the diseases, this unity of views ceases. We shall translate our author's words upon this subject. "Most of the nosological tables of mortality," he observes, "exhibit classifications more or less anatomical or physiological; the author is convinced that this principle is fallacious when it is designed to construct a table with the view of showing the influence of general causes in the production of mortal diseases. The principle which ought to govern in the classification of mortal diseases is the pathological, because in the present advancement of science it is known that general causes operate differently and in accordance with the nature of the diseases, rather than in relation to the organs affected. The nosological distinction of greatest importance rests upon the *acute* or *chronic* characters of diseases. Acute diseases themselves differ essentially, according as they are simple inflammations such as may be artificially produced by the application of a mere mechanical or chemical agent, or as they may possess a *specific* character preventing their creation artificially, or by simple irritation. Chronic diseases differ according as they are the result of some particular vice, such as that producing scrofula, tubercles, cancers, or, as they are the simple result of a chronic inflammation, leading to a hypertrophy, atrophy, induration, or a softening of the organs. This is the substance of the true principles of classification for fatal diseases which we wish to study in their relations to general causes appreciable through statistical investigations."

It appears from the report of Dr. d'Espine, that the deaths for four years in the entire Canton of Geneva, averaged 2.02 per cent. of the population, a very low rate of mortality, being little over one death to fifty inhabitants. This small proportion of deaths compared to what we find in some other countries in Europe, and especially in some of the cities of the United States, is in part owing to the smaller proportion of births, the average of which during four years was only 2.09 per cent. of the population, a fraction more than the average mortality. As the proportion of deaths in childhood is greater than at the more advanced periods of life, a large amount of births must necessarily lead to an increase in the proportion of the general mortality to the population. It must also tend to reduce the average mean duration of life. Hence, Geneva appears to have a smaller proportion of deaths to her population than other places where the amount of infants is much greater.

In estimating the rates of deaths, births, etc., to the population, reference should, if possible, be made to the influences of immigration and emigration, circumstances which often invest such subjects with great obscurity. "It is clear," says our author, "that in a country where adult emigration predominates, the proportion of deaths to the remaining population will rise, as in a country without emigration, the proportion of births to the population will be increased. Either of these circumstances has for result the increase of the infantile population, that in which the deaths are in greatest proportion compared with those occurring at other periods of life. But the difference observable between a population chiefly prolific, and one chiefly emigrant, compared with a stationary population, is, that in the first the proportion of births to the population increases much more than that of the deaths to the population, whilst in the second it is the proportion of deaths to the population which undergoes increase to a greater extent than that of the births."

G. E.

Art. XXIV.—*Lectures on the Theory and Practice of Physic.* By John Bell, M.D., Mem. of the Amer. Med. Assoc., and of the Med. Soc. of the State of Pennsylvania, Fellow of the Coll. of Phys. of Philada., Mem. of the American Philosoph. Soc., and of the Georgofilii Soc. of Florence, &c. &c., and Wm. Stokes, M.D., Lecturer at the Med. School, Park St., Dublin, Physician to the Meath Hospital, &c. &c. Fourth edition: 2 vols. 8vo., pp. 784—976. Philadelphia, Ed. Barrington and Geo. D. Haswell, 1848.

These lectures exhibit a curious instance of the original author becoming, in a great degree, subsidiary to his annotator and editor. From the addition, by Dr. Bell, of lecture after lecture, in each successive edition, to the few which he was induced to append, in the first instance, to those of Dr. Stokes—the work has grown from a comparatively small size to two ponderous volumes, in which the amount of matter contributed by the former greatly exceeds the original text of the latter. By these additions the lectures, instead of being restricted, as at first, to the consideration of a few diseases only, embrace now a very full account of nearly all the maladies to which the human organism is liable. In place of further augmentation, the work would seem to demand rather the labour of retrenchment, in some, at least, of its parts. Familiar with the labours of those who, as well at home as abroad, have of late years advanced, by the extent and accuracy of their observations, our knowledge of every department of pathology and therapeutics, Dr. Bell pours forth with no niggard hand of his own fullness of matter. No one can rise from the perusal of his lectures dissatisfied in consequence of the paucity and incompleteness of the information they communicate, if he have no reason to complain of their occasional diffuseness. In his desire to pass in review the opinions derived from every authoritative source, the lecturer has, perhaps, occasionally overloaded his subject, and rendered less clear and precise the doctrines he would himself inculcate, by the very means he has taken to illustrate and confirm them.

The work is, nevertheless, a most valuable one, and may with great confidence be referred to as a very full and accurate transcript of the present condition of medical knowledge, in reference to each of the subjects of which it treats; as well as for much sound doctrine in regard to the character and management of many of those diseases which, from their extensive prevalence in certain sections of our country, are of especial interest to the American physician; in this respect, the lectures of Dr. Bell on the leading forms of fever, especially, may be consulted with profit by all who are called upon to practice in the southern and western portions of the United States.

The authors have done ample justice to the labours of the leading modern physicians, both at home and abroad. The contributions to our knowledge derived in particular from British, American, and French observers, are noticed at length. The works, however, of the physicians of Germany have evidently been consulted less frequently than their value would seem to demand. By the German physicians the field of general and special pathology has, of late years, been cultivated with uncommon care and industry, and to their researches we are indebted for a mass of valuable facts calculated to throw not a little light upon many of the more important forms of disease. Of many of these facts our authors have been put in possession indirectly: we complain not that the lectures before us are deficient in important medical facts derived from particular sources, but that the additions to our knowledge are not always credited to those by whom they were actually made.

We have no desire at this late period to enter into a detailed examination of the views advanced by our authors in respect to the several diseases of which they treat. In making such an examination we should find but few occasions for dissent, and few errors to point out. The lectures of Drs. Bell and Stokes have become already ranked among the standard American works on the theory and practice of medicine, and we admit, deservedly so, as well from their fullness as from their general accuracy in doctrine, as regards both pathology and therapeutics. And though, perhaps, a work less adapted than some others for the instruction of mere students, it will be found particularly valuable for the use of the practitioner.

In our perusal of the work before us we have noted a few typographical errors. Some of these are particularly unfortunate, occurring, as they do, in the Greek etymologies of technical terms, or in the names of foreign treatises referred to as authorities. Thus we have νεψις, νυρ, κερ, μειτον, οφθαλμοε, for πεψις, πυρ, κορ, μειτρον, οφθαλμος, and *Deobachtungen uber*, for *Beobachtungen über* or *ueber*.

In the ninety-seventh lecture, it is stated that *kink hoart* is the common German name for hooping-cough: this is an error; the disease is known in Germany by the appellation *keichhusten* or *kindhusten*. Kink hoart is not German; it is perhaps a misspelling of the Swedish name for the disease, *kik-hosta*. D. F. C.

Art. XXV.—*A Practical Treatise on Poisons; their Symptoms, Antidotes and Mode of Treatment.* By O. H. Costill, M. D. Philadelphia, Grigg, Elliot and Co., 1848. pp. 160: 12mo.

This is an excellent compend, and a well and clearly arranged digest of the facts and opinions of the latest and most esteemed authorities; but would be far more useful, if the author had also given a synopsis of the tests for the several poisons; as without a precise knowledge of the article that has been taken, any attempt to administer an antidote would be mere guess work, and in many cases might increase instead of mitigating the evil. Dr. Costill claims no "originality for the work except in design," but has "endeavoured to collect and arrange the symptoms, post-mortem appearances and treatment of poisoning, from the best writers on the subject." We laud him for his candour, so rare in this book-making age, when we find so many works on the most important subjects claimed as new and original, which have cost the would-be author little exertion beyond the mere putting together of other men's labours. We fully admit the value of good compilations when they present a condensation of materials often-times sparingly scattered through numerous and expensive publications, but we do complain that in too many cases, these compilations are offered to the world as wholly original, without the slightest allusion to the source whence the information has been derived.

In conclusion, we can recommend Dr. Costill's treatise to the attention of the profession, and hope that it may meet with due encouragement. R. E. G.

Art. XXVI.—*Medical Lexicon. A Dictionary of Medical Science, containing a concise explanation of the various subjects and terms, with the French and other Synonymes, notices of Climate and of celebrated Mineral Waters, Formulæ for various officinal and empirical Preparations, etc.* By Robley Dunglison, M. D., Professor of the Institutes of Medicine, etc., in Jefferson Medical College, Philadelphia. Seventh Edition, carefully revised and greatly enlarged. Philadelphia, 1848: 8vo. pp. 912. Lea and Blanchard.

When the demand for a work is such as to exhaust six editions, it is certainly strong *prima facie* evidence of its value. In the case of the Medical Dictionary of Dr. Dunglison, this demand has been produced, not only by the general excellence of the work, but by the fact that in the preparation of each successive edition, the utmost care has been taken to render it more complete and thus increase its adaptation to the wants of both student and physician.

In the sixth edition were comprised nearly two thousand five hundred subjects and terms not contained in the one immediately preceding, many of which had been introduced into medical terminology in consequence of the progress of the science, and others had escaped the author in previous revisions. While, in the edition before us, there have been added between six and seven thousand terms which are not to be found in the preceding editions. To accommodate these, not only has the size of the page been increased, but the entire work has been enlarged by more than one hundred pages.

The great value of a medical dictionary results not merely from its comprising an accurate account of those terms which constitute the present nomenclature of the science, but also from its presenting a definition of all the terms which are liable to be met with in an extended course of medical reading, as well as a list of the various synonymes made use of by distinguished writers, whether of the same or different nations—by the ancient as well as by the modern authorities in medicine and its collateral sciences. In short, to render a medical lexicon a useful and satisfactory book of reference to the student and physician, it should be sufficiently comprehensive to prevent disappointment, when its pages are consulted for any term "that has been legitimated in the nomenclature of the science," even though it may have ceased to be used by writers of the present day.

It is in this point of view that the Medical Dictionary of Dr. Dunglison recommends itself to the profession. It is certainly more complete and comprehensive than any with which we are acquainted in the English language; while, in its extreme accuracy, the fullness and comprehensiveness of its definitions, and the general convenience of its arrangement it will bear a very favourable comparison with either of the leading medical lexicons of France or Germany.

Few, in fact, could be found better qualified than Dr. Dunglison for the production of such a work. Learned, industrious, persevering and accurate, he brings to the task all the peculiar talents necessary for its successful performance: while, at the same time, his familiarity with the writings of the ancient and modern "masters of our art," renders him skillful to note the exact usage of the several terms of science, and the various modifications which medical terminology has undergone with the change of theories or the progress of improvement.

By a reference to the title-page, it will be perceived that the Dictionary of Dr. Dunglison is not simply a lexicon, in the strict meaning of the term, a mere *wörterbuch*—but that it comprises a variety of subjects besides the definition, description, and etymology of technical terms. These subjects, though treated with great conciseness, increase considerably the interest and usefulness of the work.

D. F. C.

Art. XXVII.—*The Transactions of the American Medical Association. Instituted* 1847. Vol. 1. Printed for the Association. Phila. 1848: pp. 403.

This is a handsomely got up volume of 403 pages, and is illustrated with five plates, two of which are coloured. It contains, in addition to the minutes of the late meeting in Baltimore, the Reports of the several standing committees:—viz. on Medical Sciences, on Practical Medicine, on Surgery, on Obstetrics, on Education, on Medical Literature, and on Publications;—also a report from the committee on Indigenous Botany, and reports from several other special committees; a highly interesting communication from Dr. Edwards of Ohio, on the adulteration of drugs; with various other documents presented to the Association: and three very interesting memoirs, one on Œdematous Laryngitis successfully treated by scarifications of the glottis and epiglottis, by Gurdon Buck, M. D., of New York; a second by the same gentleman, entitled "A new feature in the anatomical structure of the genito-urinary organs, not hitherto described;" and finally one on Ophthalmitis Post-febrilis, by A. Dubois, M. D., of New York.

We are unable at this late period to notice the contents of this volume more particularly, but we must say that they are varied and highly interesting, and that the publication will do credit to the Association.

Art. XXVIII.—*Summary of the Transactions of the College of Physicians of Philadelphia.* From April 4 to Aug. 1, 1848, inclusive. Vol II., No. 5. Philadelphia, 1848: pp. 60, 8vo.

The present number fully sustains the character of this publication, and is replete with important contributions to our science. Among other articles of interest, are the following:—the highly valuable "Annual Report on Diseases of Children, by Dr. Condie;" an account, by Dr. Parrish, of the extraction of urinary calculi by a novel method: a case of pseudo-membranous laryngitis, in which the operation of tracheotomy, performed at an advanced stage of the disease, was followed by complete recovery, by Dr. C. D. Meigs; a case of membranous croup of a severe character, and attended with all the symptoms of approaching death, in which recovery took place without the operation of tracheotomy, by Dr. Parrish; a case of parturition occurring in a female labouring under stricture of the vagina, by Dr. C. D. Meigs; and a Biographical notice of Dr. Jacob Randolph, by Dr. Norris.

We have not space here to notice these communications particularly, but shall do so elsewhere; (see *Am. Intelligence.*) There is one subject, however, we must here advert to; and in calling the attention of the College to it, Dr. Moore has performed an important service to the community:—we allude to the serious pernicious influences exerted on the health of children, by the present system of discipline pursued in the schools of this city, and we are happy to find that the College has appointed a committee to investigate the subject, and report thereon, at an early meeting. In common, we presume, with most practitioners, we have frequently been a painful witness to the injurious effects upon the health of children, caused by the protracted sessions of most of our schools, the long confinement of children in close rooms, with a total disregard to ventilation, and the overtasking of their minds; and we can fully endorse the following remarks of Dr. Moore on the subject:

"Dr. Moore said, that for some time past he had been convinced of the injurious effects upon the health of young children resulting from the system of school discipline pursued in many of the public and private seminaries of this city. He alluded, more especially, to the holding of but one session a day. By this arrangement the children were subjected to a confinement of from four to five hours, with little or no intermission, often in small, overheated, and badly ventilated apartments. In children who are thus deprived of an adequate amount of out-door exercise, while their minds are taxed much beyond their powers, he was well convinced, from much reflection and considerable personal observation, a train of morbid symptoms are frequently induced, which are, in many cases, of considerable severity, and have a tendency to impair the future comfort and usefulness of the little sufferers. Undue confinement and too protracted application of the mental powers in childhood, would invariably, he was convinced, if it did not produce positive disease and suffering, impair the health and vigour of the system and render it more liable to the influence of those morbid influences to which it should be accidentally subjected."

QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Nerves of the Liver.* By C. H. Jones.—The liver receives a pretty ample supply of nerves from various sources: branches of the left pneumogastric, branches from the semilunar ganglia, and some from the right phrenic, are usually described as entering the organ at the transverse fissure. Having entered the portal canals, they run in the areolar tissue which surrounds the vessels, and may be seen distinctly in great numbers when the coats of the vein are dissected off. By ordinary dissection they may be followed some distance along the portal canals, but nothing satisfactory can in this way be determined respecting their distribution and arrangement. By careful dissection, and removal of the coats of the vessels, which were treated with acetic acid and examined under a power of 200 diameters, Mr. Jones has succeeded in tracing the nerves attached to the vessels of the liver further than has yet been done. His principal conclusions may be stated as follows:—1st. The nerves of the liver are almost exclusively composed of fibres of the kind termed by Henle *gelatinous;* a very few isolated tubular fibres are sometimes present. 2d. They are distributed along the whole of the vessels, and have a very complicated plexiform arrangement; and appear even in their minutest ramifications to be quite distinct from all the other tissues around them. The termination of the nerve-filaments appears to be in loops, but it is difficult to determine this point with certainty. 3d. The hepatic artery has a larger supply of nerves, in proportion to its size, than any other vessel; next in order follows the portal vein, and lastly the hepatic veins, which are very scantily supplied. The ducts also have but few nerves. 4th. The smaller hepatic arteries appear not to possess so many nerves as the larger; and it appears probable, that the nerves cease altogether with the circular fibres of the vessels. No nerves have been observed in the lobules. 5th. The organic nerves of the liver appear to consist of bands of a finely striated or granular material, in which elongated nuclei are set at intervals; and this basic substance has a tendency to divide longitudinally, although it is doubtful whether the so-called ultimate fibres are not the result of an artificial division.—*Lond. Med. Gaz.*, July 14, 1848.

2. *On the Independent Contractility of Muscular Fibre.* By Dr. E. Harless.—A new set of experiments performed on this subject, upon animals rendered completely insensible by ethereal inhalation, confirms the opinion that the irritability of muscle is a property inherent in the tissue itself, and not in any way derived from the nervous system. Dr. Harless found that even when the nervous system had been rendered, by the action of ether, utterly incapable of conveying a galvanic stimulus, applied either to the nervous centres or the nerve-trunks, the same

stimulus, applied directly to the muscles, would immediately throw them into powerful contraction.—*Brit. & For. Med.-Chir. Review*, July, 1848, from *Müller's Archiv*, 1847, No. 2.

3. *On the Changes which the Blood Corpuscles undergo in the Spleen.* By Profs. Ecker and Kolliker.—Dr. Ecker, of Basle, and Professor Kölliker have simultaneously been engaged in investigations on the nature of the cells which occur in the spleen of various animals, and which contain blood-corpuscles and yellow granules. Repeated observations convinced Dr. Ecker that the occurrence of these bodies was perfectly normal; and further, that the blood-corpuscles in the spleen undergo a normal disintegration. He found in the spleen of rabbits, dogs, sheep, and calves, besides the known cells and nuclei, other cells inclosing blood-corpuscles. Thus, for instance, in the calf, cells were observed of about 0·007 millim., containing *one* blood-corpuscle, and a perfectly pale and finely granular mass. On the addition of water, the cell burst, the blood-corpuscle escaped, and, after growing paler, disappeared. Other cells (of about 0·010 millim.) contained *two* blood-corpuscles, and besides these, some also contained a granular nucleus, exhibiting a perfect resemblance to the ordinary cells of the spleen; whilst others again enclosed only a fine granular mass, but no nucleus. Other cells contained *three* or *four*, or sometimes even *ten*, or more blood-corpuscles, of about 0·015 to 0·030 millim. The form of these cells is sometimes round, sometimes irregular; they sometimes contain a nucleus, sometimes not; the cellular membrane is generally very distinct. In some cells, instead of blood-corpuscles, there are only yellow, or brown, or blackish granules, which, as is evident from the stages of transition, are owing to a disintegration of the blood-corpuscles. Thus we find large cells (0·030 millim.) filled with shriveled, yellow blood-corpuscles, which do not change in water, and are filled with yellow granules. In the free blood-corpuscles numerous transitions from the normal to the shriveled state are observed, and nowhere are more important differences in the size of the blood-corpuscles exhibited than in those of the spleen. An investigation into the nature of the blood-corpuscles in the spleen of frogs and tritons, showed Dr. Ecker the occurrence of precisely similar changes; and in speaking of the signification of these alterations, he adduced two hypotheses, which had at first sight appeared to him to furnish an equally satisfactory elucidation of the subject. 1. That the blood-corpuscles, either singly, or several together, become enclosed in cells, within which they are disintegrated; or already disintegrated blood-corpuscles become enclosed by cells. This fact is not without analogy, since in the brain and the thyroid gland similar changes of the blood occur under different pathological conditions, as in effusions. The destination of these cells is not known with certainty, but as Dr. Ecker found them in the blood of the splenic vein (in a calf), he conjectures that they reach the liver with the portal blood; and that a separation of the blood which has lost its vitality is effected in some way by the bile. 2. The second hypothesis, the validity of which Dr. Ecker has, however, found reason to doubt since his investigations have been solely directed to the changes observed in the spleen of mammalia, was as follows: That the cells which enclose one or more blood-corpuscles are converted into lymph-corpuscles, the lymph being changed by the addition of blood-constituents. The red colour of splenic lymph appeared at first sight to corroborate this view, but subsequent investigations showed that no such bodies were to be found in the splenic lymph of a calf. It would appear that the separation which occurs in the vesicles of the spleen serves the same end as the vesicles of the other blood-preparing glands. Kölliker has extended his observations on these changes of the blood-corpuscles to so large a number of the classes of vertebrata, that we may consider them as of general occurrence in all these animals.—*Ibid.*, from *Henle u. Pfeuffer's Zeitschrift für rationelle Medizin*, Bd. vi. Heft. 2.

4. *On the Blood of the Splenic Veins and of the Vena Portæ.* By M. Beclard.—After long reflection upon the functions of the spleen, it occurred to M. Béclard, that an examination of the blood in the splenic veins might throw light upon this; and, in a letter addressed to M. Dumas, he furnishes an account of the results invariably arrived at in eight experiments performed on dogs.

1. The blood returning by the splenic vein, prior to its junction with the vena portæ and veins of the stomach, contains a smaller proportion of globules than arterial or even venous blood in general. 2. The quantity of albumen is proportionably increased—and, indeed, the disappearance of the globules can be conceived of with difficulty, without their principal constituent element being thus found to be present. 3. I have sought for the constant source of the renewal of the globules, which appeared to be thus incessantly destroyed in the spleen. I first thought of the lungs, and, as all the blood of the organism traverses them, the entire question resolves itself into this—whether a notable difference exists between arterial and venous blood, in respect to amount of globules. A larger proportion does exist in arterial blood, but to so slight an extent, as to be explicable by other causes; so that I abandoned the idea of the lungs being the exclusive organ for the formation of globules. 4. The arterial blood examined at different points of the circulation, is found to present an identical composition in the same animal; while the venous blood differs in respect to its proportion of elements, according as it is examined in different regions. The blood of the splenic veins is an example; but to my surprise I found that the amount of globules in that of the vena portæ, prior to its junction with these, so far from being diminished, was considerably increased; and so abundant is the supply of globules thus brought from its radicles to its trunk, that intestinal absorption at once presents itself as an explanation of the accumulation. The following table exhibits the differences as observed in four successive bleedings performed on the same dog:

	Ext. Jugular.	Mammary Artery.	Splenic Vein.	Vena Portæ.
Water - - -	778·9	750·6	746·3	702·3
Albumen - - -	79·4	89·5	124·4	70·6
Globules and Fibrine -	141·72	159·9	128·9	227·1

Annales de Chimie et de Physique, 1847, tom. xxi. pp. 506–8.

At the sitting of the *Académie des Sciences*, Jan. 17, 1848, M. Béclard made an additional communication upon this subject, and after referring to the above experiments, added, that he had since made thirty-six comparative analyses between the blood of the splenic and the external jugular veins; selecting the latter as the most convenient representative of the mean composition of venous blood. These also showed a less proportion of globules, a larger proportion of albumen, and a somewhat larger one of fibrine, in the blood returning from the spleen. "So that the spleen, so far from being an organ for the formation of globules, would appear to be the place of their destruction." To prevent error, the blood of the vena portæ was examined in its intestinal branch (sup. mesenteric), and the proportion of its elements was found to undergo an extensive variation. Thus, 1st, during the early period of the digestive absorption, the quantity of albumen is considerably increased; and 2d, the same occurs at a later period with respect to the globules: while, 3d, if the animal has been subjected to long abstinence, the proportion of constituents is the same as that found in the general venous system. "It results from these experiments on the blood of the vena portæ, that the globules commence and finish in the same system. While, in fact, the intestinal branch of the vena portæ brings the new globules to the common trunk, the splenic branch transmits to it the vestiges of those which have been destroyed in its interior. The blood of the vena portæ not containing a larger proportion of fatty matters than the venous blood in general, and chyle differing from lymph especially by the presence of fatty matters, it is, if not demonstrated, at least very probable, that albuminoid matters enter the blood by one sole channel, the vena portæ. On the other hand, these same matters enter the blood under one form alone, that of albumen. Finally, as the transformation of albumen into globules takes place in the vena portæ, and this only some hours after the commencement of digestive absorption, it results that the blood circulating in the portal system is not subjected to the general laws of the circulation. I shall examine this important physiological point in my next Memoir.—*Ibid.*, from *Comptes Rendus*, tom. xxvi.

5. *On the State of the Blood and Muscles in Animals killed by Hunting and by Fighting.* By G. Gulliver. (Proceedings of Roy. Med. and Chir. Soc., June 13.)—The

author commenced his paper by some extracts from the "Treatise on the Blood, Inflammation, and Gun-Shot Wounds," in which Mr. Hunter advocates the doctrine that the blood is a living fluid, which he considers to be supported by the phenomena connected with its spontaneous coagulation; and further affirms his belief that this property of the blood, as well as the contractility of muscle, is destroyed in animals hunted to death. The author's especial object was to demonstrate experimentally, that the latter opinion is at variance with his own observations, several of which he quotes. In the first, a hare was run down and killed by harriers: she became very stiff within a very few minutes after death. The heart was found, on examination afterwards, to be hard and contracted, and contained some small clots of blood. In the second observation, likewise upon a hunted hare, the phenomena were similar; but the amount of coagulum was greater, in consequence of the precaution having been taken to place a ligature around the root of the heart and lungs before excision. The fibrin presented the usual appearance under the microscope. The third observation was made on a hunted stag, which fell dead after a hard run. Some blood was obtained from the throat, which was cut; and this presented, three days afterwards, some shapeless and rather soft clots, amounting to about a third of its whole bulk; but there was no sign of putridity. The heart was likewise contracted and hard. As regards the stiffening of the muscles, the author has been informed, by observing stag-hunters, that this condition speedily supervenes when the animal is hunted to death. Analogous phenomena were noticed in cocks killed by fighting.—*Lond. Med. Gaz.*, June 1841.

ORGANIC CHEMISTRY.

6. *On the Presence of Lead and Copper in Healthy Blood.* By M. E. Millon.—When blood, as it issues from a vein, is received into a vessel containing about three times its volume of water, and is then introduced into a flask filled with chlorine, it coagulates, assumes a brown colour, and shortly forms a gray, amorphous pultaceous mass, in which all trace of organization of the blood-globules has disappeared. On squeezing this mass in a linen cloth, a fluid readily filters through, and remains limpid. In this liquid are contained all the saline principles of the blood—in the solid coagulum, all the organic matters are found. So complete is this separation of the organic and saline principles, that if the coagulum is washed and then calcined, it will be entirely consumed, without leaving a particle of residue. And, on the other hand, if the limpid fluid is evaporated to dryness, and burnt in an organic-analysis tube, so little carbonic acid will be evolved, that the quantity of organic matter not coagulated by the chlorine may be estimated as not exceeding, at the outside, 1 part in 100. This filtered fluid furnishes the means of determining the nature and amount of the fixed salts of the blood. And this may be done with such readiness, that in from two to three minutes all the iron which the blood had contained may be extracted in a state of clear solution, in which its various tests may be conveniently applied. The other fixed salts admit of being equally well obtained, without the long and difficult process of calcination to remove the organic matters. This convenient method of isolating the saline ingredients of blood may be applied equally well, also, to other organic fluids and tissues of the body. For chlorine acts in a like manner upon all.

The most important results which M. Millon has obtained by this process, are, that human blood invariably contains silica, manganese, lead, and copper. The proportion of silica and of the metals is sufficiently great that they may be detected without any particular modification of the ordinary mode of ascertaining their presence. After evaporating to dryness the liquid expressed from blood acted upon by chlorine, the residue is to be calcined, in order to remove any organic matter which has not been rendered insoluble by the chlorine. The ash is then to be submitted to the same processes employed in examining a mineral supposed to contain silica, manganese, lead, and copper. According to M. Millon's analyses, it appears that the quantity of silica in the calcined ash of human blood thus prepared varies from 1 to 3 per cent.; the quantity of lead from 1 to 5 per cent.; that of copper from 0·5 to 2·5; and that of manganese from 10 to 24. In other experiments, M. Millon examined certain quantities of pure clot and of clear serum, to determine whether the lead and copper are disseminated through the whole mass of blood, or are limited, like the iron, to the red corpuscles. The results showed that the principal quantity of these metals was contained in the clot, and, therefore, doubtless belonged to the red corpuscles. A small quantity was found in the serum, but this was probably derived from a few blood globules either dissolved or suspended in the fluid.—*Lond. Med. Gaz.*, June 1848, from *Comptes Rendus*, 1848.

7. *Urea in the Humours of the Eye.*—The vitreous humour of the ox's eye contains 1·63 parts of solid matter in 100. Berzelius detected in it chloride of sodium, a small quantity of albumen, and certain principles soluble in water. M. E. MILLON states that from 25 to 35 per cent. of this solid residue consists of urea. He found that the vitreous humour of the eye of man and of the dog possesses a similar composition. The aqueous humour also contains urea and chloride of sodium.—*Ibid.*, from *Comptes Rendus*, 1848.

8. *Creatine a constituent of Human Flesh.*—The existence of creatine in human flesh, not having been yet ascertained, although it is found in the urine. Dr. SCHLOSSBERGER treated six pounds of human flesh by the usual process, and extracted from it a quantity of creatine, amounting in all to about two grammes, a proportion approximating very closely to that obtained by Liebig, for the quantity existing in ox and horse flesh. Dr. Schlossberger did not obtain the slightest trace of inosinic acid in this experiment.—*Monthly Retrospect*, Sept. 1848, from *Ann. der Chem. and Pharm.*, April 1848.

9. *Observations on the Relation of Acids to the Animal Economy.*—In a former article on the abuse of *alkaline* medicines (see number of this Journal for Jan. last, p. 237), M. MIALHE laid down the following propositions:—1. That the greater part of the humours of the economy being normally alkaline, the abuse of alkalies does not rapidly produce serious accidents, as they do not change the nature of the medium in which the chemical changes are effected. 2. The normal alkalescence in animals contrasts them with vegetables, whose constitution is naturally acid. 3. The alkalescence of the fluids is necessary for the decomposition and assimilation of hydro-carbonated amylaceous substances. 4. The employment of alkalies, generally useful, is only dangerous for those whose vital fluids are already supersaturated with them, as is the case in certain pathological conditions, and among the inhabitants of the country, who, during their laborious occupations, throw off much acid with their perspiration, or who live upon an entirely vegetable regimen.

From the above statement, it follows, that if the naturally alkaline fluids become neutralized, and still more if they become acid, functional disorders will result. The vital fluids whose composition becomes thus perverted, are no longer fitted to produce the necessary interstitial changes and intimate modifications. The economy, at first, struggles against this condition, but ere long yields to it; and debility, wasting, and serious diseases, as pyrosis, gravel, gout, scorbutus, or diabetes (diseases far more nearly connected together than is generally supposed), may result, and prove impossible of relief as long as the acidity prevails.

A superabundance of acid may arise in the economy from various sources. 1. During the heats of summer many persons make an immoderate use of acidulated beverages. 2. The diet may be too azotized. Meats, by reason of their albuminoid matters, contain much sulphur and phosphorus; and these bodies, during their combustion in the economy, give rise to large quantities of sulphuric and phosphoric acid. 3. The most important of all the sources is bodily inactivity, in consequence of which a deficiency in the excretion of acids by means of the perspiration exists. Thus we find uric acid, gout, and diabetes especially prevailing among those classes whose diet is too animalized, and bodily exertion defective. This has long been recognized to be the case in gout and gravel, and is no less true as regards diabetes, a disease of far more common occurrence than is suspected. The glucose derived from feculent matters cannot be decomposed or assimilated in the absence of alkalies, and diabetes is a result. Herbivorous animals, whose fluids are still more alkaline than our own, never suffer from this disease.

The peasant in the country, sweating enormously, and at the same time increasing the alkaline state of the humours by his vegetable regimen, can bear large quantities of acid drinks. So, too, the inhabitants of hot countries eat with impunity enormous quantities of acid fruits. The acids of fruits, however, always are less dangerous than the free acids, as they are in part united with alkalies, and their salts undergo changes in the blood, which transform them into carbonate of potass. Wherever inactivity or cold diminishes the cutaneous secretion, the ingestion of acids becomes especially dangerous; and thus gout or diabetes, which had disappeared, may be reproduced by a low temperature alone.

If certain waters are more favourable than others to health, a fact which did not escape the Romans, this is due to the presence of a marked proportion of bicarbonate of lime. Such waters immediately saturate superfluous acidity, facilitate the decomposition of glucose, and are especially adjuvatory to the formation of bone and the prevention of rickets.

A question has of late much occupied chemists, viz., why the organic acids should pass into the urine and the mineral acids not. That portion of the former of these which remains after saturating the alkalies, may pass at once off by the urine; but the mineral acids being endowed with the property of coagulating albumen, which the others are not, can never reach very far, since at every step they are absorbed by the tissues and the fluids which impregnate them. The resulting coagulum may, indeed, gradually yield its acid to the alkaline bases of the blood, and the acid so saturated may pass into the urine as a salt, but it can never reach the fluid in its free state. "So much do I rely upon this explanation, that I am certain that phosphoric acid, in spite of its mineral origin, would reach the urine in its free state; for, unlike the other mineral acids, it does not coagulate albumen, and in that respect is analogous to the organic acids."—*Med.-Chirurg. Rev.*, July, 1848, from *L'Union Médicale*, 1848, No. 22.

MATERIA MEDICA AND PHARMACY.

10. *On Digitaline: its Physiological and Therapeutical Effects.*—The subject of digitaline has been treated, some years ago, with great talent by Messrs. Homolle and Quévenne, (see number of this Journal for July, 1845, p. 182,) and more recently by Messrs. Bouchardat and Sandras. Much, however, remained to be done in a clinical point of view, and this deficiency M. Rayer has endeavoured to supply in his investigations, reported in a paper by M. Hervieux.

As to the physiological effects of digitaline, it may be said that doses of one-forty-eighth, one-twenty-fourth, and one-sixteenth of a grain, are not disagreeable to take, and produce no disgust or repugnance afterwards. The lowering effects on the pulse have been noticed in all patients, without exception: it was retarded from twelve to forty-eight pulsations, or, in other words, the mean amount of diminution was between one-fourth and one-third; the maximum, one-half, and the minimum, one-eighth. Two or several hours must, however, elapse before these results can be noticed. The pulse, if the whole length of the treatment be kept in view, reaches the maximum of retardation only after a week or two. This maximum is then, strictly speaking, an absolute one, and the maximum which is observed daily, five or six hours after the ingestion of the drug, is a relative one. The peculiarities of the pulse, when thus lowered, are extremely variable: in most cases it is small; but it acquires, nevertheless, a certain amount of resistance and hardness, rarely recovering its normal fullness. A phenomenon worth noticing is the effect of digitaline on the irregularity of the pulse; for the ingestion of the drug may produce this irregularity, and either modify or destroy it, if it were pre-existing. But it may be gathered from experiments, that digitaline, at least in therapeutical doses, improves the qualities of the pulse, instead of injuring them; that it diminishes its frequency, and regulates its action, bringing it rather nearer to the normal standard than removing it from the same. The urinary functions are much influenced by digitaline. This is evinced both by the increase in the quantity of the evacuations and their frequency. One-twenty-fourth or one-sixteenth of a grain, administered for some time, has, in the majority of cases, increased the amount of urine by one-half; in some cases, the proportion was less; and in other very rare ones, it increased fourfold. The physiological effects can, therefore, be thus summed up:—

1. Digitaline, in doses of the twenty-fourth to the sixteenth of grain, renders the circulation slower, and increases the secretion of urine.
2. Doses of one-twelfth to one-eighth of a grain may give rise to serious disturbances of the nervous centres and the digestive organs.
3. Beyond an eighth of a grain intolerance always sets in, and death might ensue if this limit were overstepped, or if the attempt were pursued too long.

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11. *New Organic Base in Opium.*—Dr. G. MERCK, in the examination of a quantity of the residues of opium, has discovered a new base for which he proposes the name of *papaverine.* This substance crystalizes in groups of pointed crystals from its spirituous solution. It is sparingly soluble in cold alcohol and ether, but much more so in these menstrua at the boiling temperature. It is insoluble in water. It scarcely affects reddened litmus paper; with sulphuric acid it gives a blue colour. The salts of papaverine are for the most part sparingly soluble in water, and the hydrochlorate is especially remarkable for the facility with which it crystallizes. It is obtained in right-rhombic prisms, the angles of which are 80° and 100°. The sulphate and nitrate are also readily crystalizable. With bichloride of platinum it gives a double salt in the form of a yellow powder, insoluble in water and alcohol. The analyses of Dr. Merck establish the following as the formulæ of the base and its compounds:—Papaverine, $C_{40}H_{21}NO_8$; Hydrochlorate, $C_{40}H_{21}NO_8+HCl$; Platinum Salt, $C_{40}H_{21}NO_8.HCl_1P+Cl_2$.—*Month. Journ.* and *Retrospect*, Sept. 1848, from *Ann. der Chem. und Pharm.*, April 1848.

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12. *On the Use of Adansonia Digitata as a Substitute for Sulphate of Quinine.*—M. DUCHASSAING, of Guadaloupe, having been led by the high price of sulphate of quinine to seek some other remedy against intermittent fevers, conceived the idea of employing the bark of *Adansonia digitata.* The result of a series of numerous experiments has tended to confirm the efficacy of this remedial agent, which is cheap, of an agreeable taste, exercises no action on the nervous system, but is favourable to the functions of digestion. M. Duchassaing has found these means succeed in cases where the strongest doses of sulphate of quinine had failed. One ounce of this bark, boiled in a litre of water till it was reduced one-third, generally sufficed to cure these kinds of fever.—*Gaz. Médicale*, May, 1848.

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13. *Solution of Gutta Percha as a dressing to Wounds.*—Gutta percha may be readily dissolved in bi-sulphuret of carbon in all proportions, and without the aid of heat. When a few drops of this solution are placed on the surface of any object, the carburet of sulphur evaporates with great rapidity, and leaves a thin layer of gutta percha, which acts as a preservative against the influence of air. On account of this, M. VOGEL has employed this solution to cover wounds caused by a cutting instrument. The carburet of sulphur in evaporating produces a sensation of cold in the skin, which acts as an antiphlogistic, and a re-union of the margins of the wound is readily effected. The sulphuret of carbon should be quite pure and free from all traces of sulphuretted hydrogen. This may be effected by treating it with litharge or carbonate of lead. He has also employed this solution for covering the surfaces of fruit which it is wished to preserve in a collection of natural history. Up to the present time a solution of wax has been employed for this purpose, but there is a great difficulty in removing the wax from the fruit without tearing the surface. The solution of gutta percha, which completely prevents the fruit from drying, has also the advantage of being easily removed by means of hot water. The solution offers also a great advantage for paintings and drawings, for it possesses the property of fixing in the paper, pencil, chalk, or charcoal drawings in such a manner that it is impossible to injure them by friction.—*Prov. Med. and Surg. Journ.*, from *Med. Times.*

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14. *Liquid India-Rubber as Sticking Plaster.* By Mr. DOUGLAS FOX.—If liquid

India-rubber, spread upon calico, or other material, by a stiff brush, or by a knife, be used as adhesive plaster, it will be found to answer far better, in almost every case, than any other adhesive material, as it sticks firmly, is pliant, produces no irritation to the skin, and will bear lotions, or washing over it. It is also most valuable in cases where the skin requires a soft plaster of an unirritating nature for its defence, as in old persons, or others long confined to bed. In such cases, it is better to use either soft leather or the vulcanized India-rubber, made in thin sheets; the latter, from its elasticity, is often the best, as it stretches with the skin on every movement of the body. To many kinds of wounds, from operations or otherwise, strips of thin vulcanized India-rubber, spread with the liquid, will be found invaluable as elastic adhesive plasters, as they become firmly attached to the skin, and give way to all its movements. But should any wounded part require a portion of the plaster to be non-elastic, as in the case of operation for hare-lip, &c., then, in order to secure such part from being stretched, a short piece of calico, about an inch in length, should be stuck upon the middle of the elastic plaster, by which means that portion would become stationary.

If a circular piece of thin vulcanized India-rubber, about two inches in diameter, be spread with the liquid, and applied on the abdomen of an infant having umbilical hernia, and a common bandage, such as is generally used for infants, be passed lightly round the body, the protrusion will be instantly checked; and if the same plaster be again spread with the liquid and re-applied, when it comes off from time to time, no trouble will be experienced by the infant. It is not necessary to use any pad or compress.

The liquid, which is like thick treacle, and the vulcanized India-rubber, may be procured in most large towns. (They are manufactured in Manchester, by Charles Mackintosh and Co.) In most cases, the thin sheet of the vulcanized India-rubber, or that sold as No. 50, will be the most suitable; in other cases, the thicker, or the No. 36, will be advisable.

The most convenient method of carrying the liquid is in one of the small, compressible bottles, used by painters, holding about an ounce, so that on removing the screw-cap, any required quantity can be squeezed out.

The above statement will give a general idea of the subject; the materials may of course be used in a vast variety of forms.—*Lancet*, Feb. 19.

MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

15. *Observations on "Ochlesis," or the Disorder generated by the Accumulation of the Sick.* By Geo. Gregory, M.D. (Proceedings of Roy. Med. and Chirurg. Soc., June 27).—The object of this communication is to give a brief sketch of the evils which result from the accumulation of a vast number of sick persons under one roof. The author designates the general condition of disease produced under these circumstances by the term "ochlesis," derived from οχλος, a crowd. The normal type of the disorder is erysipelas of the face; but there are a vast number of allied affections which appear at different times with it, either separately or in combination. These are, erysipelas of the extremities, especially affecting wounds or sores; trails of erythematous redness, following the course of the chief absorbent trunks, and terminating in abscesses; cellular inflammation of the lower limbs, or phlegmasia dolens; cellular inflammation of the neck, leading to abscess, cynanche, otitis, glossitis; inflammation of the joints, terminating in purulent effusion; spontaneous gangrene of the genitals and of the extremities; gangrene supervening upon wounds or sores; spontaneous gangrene of some portion of the trunk of the body, especially in new-born children; gangrene of the umbilicus. Instances of pure fever, of a low type, from the same source, are not uncommon. Diarrhœa sometimes is the result, from the mucous membrane of the bowels becoming affected; and in the wards of lying-in hospitals, the "ochletic" miasm expends all its virulence on the peritoneum. The author has seen an asthenic form of laryngitis produced by the same cause, and believes that the pneumonia which springs up in hospitals has likewise its source in the contagious ochletic

miasm. This miasm, too, he thinks, produces the excessive depression which attends the worst cases of sea scurvy, and he has seen it occasion, in the Small-pox Hospital, a state resembling, in all respects, scurvy itself. All the disorders originating in the ochletic miasm are characterized by a low condition of the vis vitæ, and intractability. The experience of the Small-pox Hospital during many epidemic visitations, especially in the years 1842, 1844, 1847, and 1848, has convinced the author of the fact, that all the diseases which he has enumerated may arise from the same miasm. Contagious peritonitis is, perhaps, the only form of the ochletic malady that he has not seen at that hospital during the last twenty-five years; but he regards it as quite certain that this is "part and parcel" of the same disease. The chief agent in the production of ochlesis is, certainly, the crowding together of the sick in one spot; but matters are made much worse by unfavourable locality, by dampness of the surrounding soil, imperfect drainage, or choked sewers, by deficient ventilation, by the character of the cases congregated, by neglect of personal cleanliness, by the employment of unpurified bedding, and by inefficient purification of the wards. Since, however, the ochletic miasm is evolved only at certain times, a peculiar, but unknown, condition of the atmosphere must concur towards the actual result. The ochletic miasm appears to attach itself strongly to the walls and floor of the apartment—hence the use of covering the floor with a mixture of quicklime and water, of lime-whiting the walls, of fumigating with nitric acid or chlorine, &c. The great means of checking the development of ochlesis, however, is to restrict the admission of patients, and to leave the infected ward unoccupied for a certain time.—*Lancet*, July 17, 1848.

16. *Cases illustrative of some consequences of Local Injury.* By THOMAS HODGKIN, M.D. (Proceedings of Roy. Med. and Chirurg. Soc., June 27.)—The cases detailed are divided into two groups; the one, in which the effects had more or less the character of common inflammation; the other, distinguished by the production of an adventitious structure having the character of malignant disease. The following is an outline of the first of three cases included in the former group:—

R. M——, about forty-five years of age, an active man of business, of spare habit, but enjoying nearly uninterrupted health, had, rather more than two months before his death, fallen upon the edge of the curb-stone, in one of the streets of London, but was not sensible of having received much injury. About six or seven weeks afterwards he was exposed to wet and cold, after being heated and fatigued. In the evening he was chilly and distressed, and felt severe pain in the right side. He went out the next day, and was again exposed to wet and cold, but after this was confined to the house. A blister was applied to the seat of pain, and aperients and effervescing salines were given. He complained no more of pain in the side, but remained feverish and weak. Two half-glasses of claret produced a most disproportionate mental excitement, which returned in paroxysms. In a day or two after this he passed into a state of coma, with a very rapid, feeble pulse. Ammonia was given. He revived, and complained transiently of a little pain in the left arm and leg. A small induration was found near the calf of the leg: this slowly increased, and the day before his death caused considerable pain. After the mental disturbance had passed off, his head was generally hot, and his face for some time rather flushed; the expression of his countenance generally quite composed; the breathing quick, but easy, with a little stertor during sleep or somnolence; the tongue was moist, with a white fur on its surface: the pulse generally numbered 120; vomiting occurred twice or three times before death. A short time before death small pustules or maturing vesicles were noticed on the body and limbs.

On the examination of the body, a small subcutaneous collection of pus was found near the head of the right fibula. A larger tumour at the upper part of the left calf was not opened. Nothing remarkable was found within the cranium, except that in the cortical substance of the brain, at one particular spot, there seemed to be an evident but very partial softening, by which the separation of the external layer of the cortical substance from the subjacent layer was favoured. The right pleura presented marks of recent inflammation near its lower part, and over the fifth or sixth rib, from its anterior extremity to its angle, was elevated by rounded purulent deposits of various sizes. The corresponding part of the pulmonary pleura presented similar purulent deposits, and the adjoining part of the lung was in a state of recent hepatization. The muscular structures on the exterior of the same rib were found sprinkled with similar, but smaller purulent deposits. The left pleura and lung, and the heart, were healthy. In the abdomen, the only remarkable appearances were numerous scattered depressions in the mucous membrane of the stomach, probably the enlarged orifices of follicles; marks of severe inflammation of the mucous membrane of the large intestine, from the middle of the arch of the colon to the rectum; and the presence of a small quantity of semi-transparent lymph between the convolutions of the intestines, between the middle and lower parts of the abdomen.

Of the second class of cases, seven examples are given. The author, in his remarks, first directs attention to the peculiarities of the former class of cases; the slight primary effects of the local injury, and the anomalous character of the secondary effects; the disturbance of the mental faculties in two of the cases; the constitutional disturbance, exciting the suspicion that the brain, heart, or some important part of the alimentary canal, was in a state of acute inflammation; and in two cases, the severity and rapidity of the symptoms, which were nearly as great as in cases of dissection and other poisoned wounds. He expresses the opinion, that these symptoms were due to a morbid poison being generated in the system—an opinion favoured by the occurrence of vesicles, with puriform contents, on the surface of the body. To explain the formation of this morbid poison, he supposes that the immediate effect of the local injury is so to impair a portion of the animal tissue, as to render it incapable of the proper maintenance of those molecular changes by which interstitial absorption and deposition are carried on; that the changes which take place in dead animal matter proceed in the injured part very slowly, and during health produce no inconvenience; but that if a febrile state of the body be set up by cold or other cause, the morbid influence of the part in which these chemical changes are going on produces inflammation or derangement of a more specific kind in the surrounding tissues, and the further production of a like cause of irritation in the system generally. In one case a remarkable odour of malt or saccharine matter was observed. This the author regards as an almost certain omen of death. In the second group of cases, instead of the vitality of the injured part being reduced, the most striking phenomenon is the production of a new growth, to which vital organization is essential. All living parts, whether old or new, are nourished from living material, and every living cell is produced from a previous cell. In these cases the injury does not destroy life, but only modifies the nutrition of the part, by exerting an influence on small molecules. The result is, that the new cells formed there are modified, from being, as it were, incubated in a peculiar *nidus*. When once the production of morbid corpuscles, suited to the production of a morbid tissue, has taken place, the growth of such structure at the affected part may almost be made the subject of ocular demonstration; but the subsequent appearance of a similar structure in other parts of the body is still involved in some mystery.—*Lancet*, July 17, 1848.

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17. *Case of Hydatids within the Cranium, giving rise to some singular Phenomena.* By JAMES STEWART, M. D. Communicated with some prefatory remarks by Dr. George Gregory. (Proceedings R. Med. and Chirurg. Soc., June 27.)—In the first portion of this paper, Dr. Gregory remarks on the greater rarity of acephalocysts, or hydatids, in the intra-cranial structures, than in the thoracic or abdominal tissues, and refers to Dr. Craigie's observation that in the greater number of recorded cases only solitary serous cysts existed, not clustered hydatids. After noticing briefly three cases, one described by Rentdorff, a second related by Mr. Mowatt, of Worthing, in the second volume of the *Medico-Chirurgical Transactions*, and the third communicated by Mr. Burnell to the late Dr. Baillie, who remarked that none such had ever fallen under his own observation, Dr. Gregory states, as the result of his reading, that the normal series of symptoms flowing from the development of intra-cranial hydatids seem to be the following:—Pain in the head, succeeded, after a considerable time, by epileptic fits, and terminating in apoplexy. The Pathological Museum of the Army Medical Department at Fort Pitt, Chatham, contains two specimens of hydatids of the brain. An account of all that is known

relative to these cases has been furnished to Dr. Gregory by Dr. French. In the first case no cerebral symptoms were noticed during life. After death, cysts, described as hydatids, were found beneath the pia mater, covering the hemispheres, in the right corpus striatum, and in the substance of the cerebrum in its immediate vicinity. In the second case, epileptic fits were present for three years and five months before death. Here there were small round bodies, like hydatids, some hard and almost cartilaginous, not only beneath the pia mater, but also generally throughout the substance of both cerebrum and cerebellum. They were collected to the amount of an ounce or more. Each consisted of a distinct membranous sac, which sometimes appeared double, and in layers like an onion. All the cysts contained a clear fluid, with more or less cheesy-looking matter. Dr. Gregory then communicates the following case, which, at his request, had been transmitted to him by Dr. Stewart:—The patient, a gunner of the Royal Artillery, aged twenty-four years and nine months, was admitted in the Artillery Hospital, Woolwich, on the 29th of April, 1848, immediately on his arrival from Malta, with the following history:—He had arrived in Malta with his company in February, 1847, and from that time suffered from constant headache In November, 1847, he had a severe epileptic fit, followed by coma. Subsequently imbecility showed itself, and his vision became impaired, the pupils being sluggish, and the left eyelid affected with slight ptosis. His memory became defective, and he became subject to immoderate and uncontrollable fits of laughter when spoken to. When he arrived at Woolwich, he still presented the last-mentioned most remarkable symptom. His hearing was a little affected, but both eyes were amaurotic; he staggered in his gait like a drunken man, and the expression of his countenance was idiotic. On the 22d of May, a large piece of meat which he had attempted to swallow stuck fast in the œsophagus, and he was only saved from suffocation by tracheotomy. A few hours afterwards, epileptic fits ensued, and were followed by coma, in which he died on the following morning. On examining the body, there was found in the middle fossa of the base of the cranium, between the cranial bones and the dura mater, a mass, the size of a closed fist, which proved to be a nest of hydatids. The hydatids were very numerous, and varied in size from that of a large pea to the dimensions of a small orange. The contiguous bones were roughened The substance of the brain, which, together with the dura mater, was pressed towards the right side, presented no abdominal appearances. The lateral ventricles were filled with a clear fluid.—*Lond. Med. Gaz.*, July, 1848.

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18. *On the Minute Anatomy of the Emphysematous Lung.* By G. Rainey, Demonstrator of Anat. at St. Thomas's Hospital. (Proceedings of Roy. Med. and Chirurg. Soc., June 27.)—The author first describes the minute anatomy of the pulmonary tissue in the healthy state. He then gives an account of the microscopic examination of portions of lung which were in the state of ordinary vesicular emphysema. The first change which attracted his attention was the perforated or cribriform state of portions of the lining membrane of the air-cells. He next observed that the membrane in the vicinity of these perforations, as well as in many parts which had not yet become cribriform, was studded with minute portions of oil, the membrane itself being thinner at these points. He supposes, therefore, that the conversion of the nutritive material of the pulmonary membrane into oil induces a weakened condition of the membrane, and renders it unable to support the capillary plexuses, and to resist the pressure of the air in the air-cells, and that the perforations already mentioned are the consequence. Other changes follow. The meshes of the capillary network become wider, and the capillaries themselves smaller. Several cells become broken up into one cavity. Fragments of the lacerated cell-walls are then seen containing extremely elongated and contracted capillaries, with very large and generally very long areolar spaces. When the cavity has become very large, the air-cells which were broken up to form it have in a great measure disappeared, and its sides are held together merely by fibrous bands composed of the remains of small bronchial tubes, and of condensed interlobular cellular tissue. When such a cavity is situated near the surface of the lung, the pleura and sub-serous tissue become thickened. The disease is regarded by the author as an instance of "fatty degeneration."—*Lancet*, July 17, 1848.

19. *Aneurism of the Arch of the Aorta.*—Dr. Bellingham, in the numbers of the *Dublin Medical Press* for May and June last, relates several cases of aneurism of the arch of the aorta: with some remarks on the diagnosis of that disease, on the mechanism by which the double sound and double impulse are produced in aneurism of this part of the aorta, and upon the analogy between the normal and abnormal sounds of aneurism of the aorta, and the normal and abnormal sounds of the heart. The following are the conclusions at which he arrives:—

1st. That a double, not a single sound, characterizes aneurism of the arch of the aorta, which closely resembles the double sound of the heart, and may be termed its *normal* sound.

2d. That the normal double sound of aneurism of the arch of the aorta has its cause in the friction between the blood and the lining membrane of the orifice and parietes of the sac, because there is no other agency to which it can be referred.

3d. That the normal second sound of aneurism of the arch of the aorta is caused by the regurgitation of the blood into the sac from the aorta and large vessels which arise from it.

4th. That the first, or the second, or both aneurismal sounds, may be replaced by a murmur, which may have either a blowing, sawing, or filing character; and that such murmurs may be regarded as the *abnormal* sounds of aneurism of the arch of the aorta.

5th. That the first aneurismal sound is much more frequently superseded by a murmur than the second, because the force with which the blood is transmitted to the sac by the left ventricle is much greater than that with which it regurgitates into the sac at the period of the ventricular diastole.

6th. That the abnormal sounds of aneurism of the arch of the aorta, equally as its normal sounds, are caused by friction between the blood and the orifice or parietes of the sac; and that they are nothing more than exaggerated normal sounds —exaggerated, because the degree of friction is then increased.

7th. That in aneurism of the arch of the aorta pointing externally, the sound is not only always double, but a double impulse is frequently also perceptible to the hand.

8th. That the second impulse of aneurism of the arch of the aorta has its cause in the same agency which gives rise to the second sound; consequently neither a double sound nor a double impulse is perceived in aneurism of the abdominal aorta, or of any of its branches.

9th. That the phenomenon known under the name of Frémissement Cataire, or purring tremor, whether it occurs in an aneurism or a large artery, is nothing more than the pulse of aortic regurgitation on a large scale; consequently that it is a sign of regurgitation into the ventricles of the heart, into an aneurismal sac, or into a large or a dilated artery.

10th. That the remarkable resemblance between the normal and abnormal sounds of aneurism of the arch of the aorta, and the normal and abnormal sounds of the heart, renders it probable that the mechanism of their production is the same.

11th. That the abnormal sounds of the heart, having their seat at the orifices of the ventricles, and being the result of increased friction between the blood and the parts through which it passes, are (like those of aneurism of the arch of the aorta) to be regarded as nothing more than exaggerated normal sounds.

12th. That the impulse of the healthy heart, like that of aneurism of the arch of the aorta pointing externally, is *double*, not single; and that in certain abnormal conditions of the heart, this second impulse becomes very distinct, when it has been termed "the back stroke of the heart," or "the diastolic impulse."

13th. That the second impulse of the heart (like that of aneurism of the arch of the aorta) is felt exactly at the period of the second sound; and both sound and impulse appear to be produced by the same agency.

14th. That as sounds almost precisely similar to those of the heart are developed (in an aneurismal sac, which has neither muscular walls nor a valvular apparatus at its orifice, the latter do not appear to be as essential to the production of the normal sounds of the heart as most writers suppose.

15th. That the ordinary theory of the heart's sounds, which refers the normal sounds to one cause, and its abnormal sounds to a totally different cause, fails to explain several phenomena connected with the heart's action and sounds.

16th. That the theory of the mechanism of production of the heart's sounds, laid down in the preceding pages, satisfactorily explains every phenomenon connected with the normal and abnormal sounds of this organ.

20. *On the Action of Diuretics.* By Dr. GOLDING BIRD.—Diuretic agents are divided into two classes by Dr. Bird. The first, termed *specific diuretics*, comprises those remedies which exert no chemical action on organic matter out of the body, and appear to be incapable of augmenting the quantity of solids in the urine, and hence they are only of use in increasing the elimination of water—they may and do act as renal hydragogues, but not as renal depurants. To this class belong squill, copaiba, broom, juniper, turpentine, digitalis, &c. All these have the power of increasing the discharge of fluid by the kidneys; but the quantity of solids present in the urine will never be found to exceed much the normal quantity. Hence, these drugs are only of service in the removal of dropsical accumulations.

The second class (termed *chemical* or *alterative diuretics*) comprehends those medicines which increase the amount of solid elements in the urine, and thus act as true depurants. It includes "the alkalies, their carbonates, and their salts, with such acids as in the animal economy are capable of being converted into carbonic acid, including the acetates, tartrates, citrates of soda and potass. These remedies all act alike; they all actively stimulate the excreting function of the kidneys, and increase the bulk of the urine: but they do more; they actually increase the metamorphoses of tissue by, in all probability, a direct chemical action on the elements of worn-out and exhausted tissues, or other matter in the capillary laboratory of the body. It is well known that alkalies and their carbonates powerfully dissolve albumen out of the body, and even break it up into various secondary bodies: thus, digested with an alkali, albumen yields leucine, protid, and erythro-protid, bodies allied to gelatine, formic acid, and other compounds. In like manner casein is broken up into tyrosin, leucine, valerianic acid, and other elements. From some such changes occurring in the body, and in the living organism itself, we find the chemical diuretics easily effecting important changes." This Dr. Bird has frequently confirmed by direct experiment; and he relates the case of a lady in whom, by the use of three drachms of the acetate of potass, the amount of solid ingredients of the urine passed in the twenty-four hours was increased from 416 to 782 grs., the increase consisting chiefly of creatine, creatinine, uroxanthin, and matter rich in sulphur. The quantity of urine passed daily was at the same time increased from sixteen to forty ounces. "Now, admitting that the elements of our frames resist chemical influences in the ratio of their vitality, it would follow that such constituents of our fibres as present the greatest departure from health are less highly vitalized, and thus yield the easiest to the chemical force exerted by the alkaline diuretics. On this account it is fair to presume that, when we cause an alkaline carbonate to circulate through the blood, it exerts an influence on the nascent elements of those matters less highly influenced by life, allied to that which they exert on dead matter, aids their resolution into substances allied to those produced out of the body, and actually causes the matter to assume so soluble a form as to allow of its ready excretion."

"I would earnestly (Dr. Bird observes) beg a careful and steady trial to the *depurating or chemical diuretics*, especially the salts of potass with vegetable acids, in the treatment of chronic affections, in which the exciting cause, or existing disease, depends upon the presence of some product of less vitality or imperfect organization. I fully believe that in many instances such matters will be often found to yield, whether they present themselves as albuminous deposits in glands, furuncular disease of cellular tissue, or incrustations on the skin, as in some of the squamous and tubercular cutaneous diseases. That they will succeed in increasing the waste of matter, is, from my observation, beyond all doubt; that the lowest vitalized matters will yield to the solvent the readiest is most probable, and that an important and powerful addition to our supply of therapeutic weapons is thus certain."—*Monthly Ret.*, Sept. 1848, from *Lond. Med. Gaz.*, Aug. 11, 1848.

21. *Cod Liver Oil.*—The following account of the chief forms of disease in which

it has been found useful, is taken from an essay on the "History of the Fish-liver Oil," published in the *Gazette Médicale de Paris.*

Chronic rheumatism.—According to Alexander, Knood von Helmendstreit, Amelung, Brefeld, Basse, Fehr, Galcoma, Mall, Moeunig, Munzenthaler, Michaelis, &c., who have all published their own observations concerning the fish-liver oil in chronic rheumatism, this medicine possesses such an efficacy in this disease that it surpasses in their eyes all the other remedies, without excepting the most lauded anti-rheumatics.

This opinion of different physicians, who have all experimented by themselves, cannot be taxed with exaggeration, if it is considered that amongst these cases there are found numerous instances of rheumatic patients being cured, who, after many years of suffering, and usage of all sorts of remedies, having lost their strength and despairing of cure, were completely cured by the aid of the fish-liver oil.

Rheumatic sciatica.—The fish-liver oil did not prove less efficacious in this form of chronic rheumatism, which is generally distinguished by its obstinacy; this is verified by the observations of MM. Knood von Helmendstreit, Rust, Amelung, Munzenthaler, Settenger, and Spitter.

Scrofulous diathesis.—Although there are various observations published in support of the excellence of this oil for certain severe forms of confirmed scrofula, it requires something, candidly speaking, which will prove its efficacy in the scrofulous diathesis with certainty. The cause of this doubt ought not to be looked for in this circumstance, that the liver oil is less applicable in the scrofulous diathesis than in certain of the more severe forms of scrofula, but that the greater part of physicians are in the habit of only publishing their observations of the more severe cases. But if we consider that the scrofulous diathesis is the principle from which emanates, by the accession of aggravating circumstances, all the numerous and often dangerous forms of scrofula, and that the liver oil is in our eyes a true specific for the more severe forms of this affection, it is evident that this medicine is that which ought to counteract this principle with most certainty. Such is the opinion of M. Brefeld and Dr. Galama, who say that the liver oil is the most efficacious remedy for the scrofulous diathesis, and for no matter what form of confirmed scrofula.

Confirmed scrofula.—Amongst the facts relative to the use of the liver oil in some of the manifold forms in which confirmed scrofula is presented, the most remarkable are those which Drs. Brefeld and Roppe have made known, the result of which is that this medicine universally is fit for all forms and kinds of scrofula. The principal forms of scrofula in which it has succeeded are given below.

Swelling of the lymphatic glands.—Under this title we have only to do with the swelling of the superficial lymphatic glands, situated immediately under the skin, in the region of the throat, to the nape of the neck, armpits, or groins.

The fish-liver oil is considered a certain and infallible remedy in swellings of the lymphatic glands which appear oftenest, first under the form of hard unequal tumours, nearly immovable and insensible, but which afterwards, when inflammation has laid hold of the cellular tissue which surrounds them and the skin which covers them, become inflamed, and suppurate in their turn. The cure always requires a much longer time where these swellings are connected with a confirmed scrofulous diathesis. This also can be advantageously influenced by the external use of the oil by frictions on the painful and inflamed tumours; this way of employing the medicine is that which has prevailed and which is recommended by the greater number of practitioners in this form of scrofula. But if the fish-liver oil is efficacious in swelling of the lymphatic glands of a scrofulous origin, it is absolutely useless in swellings of the same glands which are the consequence of small-pox, measles, of scarlatina, or even those which are developed in the course of syphilis, or of a carcinomatous affection.

Scrofulous ulcers.—The effect of this medicine is quicker and more remarkable in scrofulous ulcers, with fungous and irregular borders, generally so difficult to cure, which arise either from suppurative inflammation of lymphatic glandular swellings, or from the dissolution of those indurated strumous tumours which are found so often in subjects of a scrofulous constitution, in all parts of the body indifferently. It has the same effect also in different traumatic lesions which so frequently become the origin of ulcers in subjects of a full scrofulous habit. Dr. Brefeld relies greatly on the external use of this oil, with which he prepares an ointment which he applies to the ulcers by means of a pledget. In one case, notwithstanding, treated by the oil internally, the result was as favourable. The strumous tumours, which we have referred to above, and which ought to be distinguished from lymphatic glandular enlargements, are perfectly cured by the fish-liver oil, even after they have passed into the ulcerous state, provided that the oil be administered in proper time; it was the same in the case of the tumour being on the point of becoming an abscess. The tumours decreased during the internal and external administration of the medicine, and it seems they became dried up.

Chronic exanthemata.—The fish-liver oil has been proved equally efficacious in the chronic exanthemata which are developed under the influence of a scrofulous diathesis, whether they occupy parts of the body covered with hair or places which are destitute of it.

In this case, some say they have obtained the best results from the internal use of the oil, while others pretend, on the contrary, to have obtained as good results by the external use of the same remedy. The usage of it externally, tried for the first time with success by Dr. Guerard for scald head, is principally recommended by Dr. Brefeld, and who pretends, what is more, not to have obtained any good result from the internal use of the liver oil in the exanthematous form of scrofula.

The milky scurf, so often observed in ill-nursed children, in whom there have never before been observed any symptoms of scrofula, and which, according to Dr. Brefeld, forms the transition of true scrofulous exanthemata; the exanthemata which are observed on the long-haired skin of young children, and which often envelop the whole face; scald head, which is not uncommon to see last till the age of puberty; and, finally, the scrofulous exanthemata which come out on every other part of the body, were quickly cured, according to Dr. Brefeld, by the external use of the liver oil, and even after in some cases they had for a long time used the internal treatment in vain. Experience taught him that the use of the liver oil, either externally or internally, had no effect on malignant, hereditary, or contagious scald head, even when combined with oil of turpentine by the advice of Dr. Marteus; the same may be said of some psoriacal and syphilitic exanthemata.

Dr. Hauf reports a case of humid herpes causing an insupportable pruritus, which, after having resisted all sorts of remedies, was cured by the use of friction of fish-liver oil.

Rachitis.—The fish-liver oil is, without exception, the best remedy for rachitis, in all its stages, and under whatever form it presents itself; such is the nearly unanimous opinion of the German and Dutch physicians, who affirm with one accord that it is much superior to any of the so-called anti-rachitic remedies. According to Dr. Schmidt, who has most insisted on the advantages of this medicine in twenty-one rachitic patients which he had treated at the time when he made known his results, thirteen were cured, four were in process of being cured; as to the others, judging from the progress which they had made for the little time they were under treatment, a very favourable prognosis might be drawn.

In France, far from partaking of the enthusiasm of the German physicians for this medicine, they have kept on their guard, perhaps with an exaggerated distrust; its efficacy in rachitis has nevertheless appeared to some placed beyond doubt. We have said that M. Bretonneau, and M. Trousseau, by his example, had obtained good results. It is in these terms that Professor Trousseau expresses himself on this subject: "We have often obtained cures, the rapidity of which surpassed our expectation. Sometimes, after four days of treatment, the sharp pains which the children felt in all their limbs ceased; and the bones which could be bent, acquired, at the end of five days, a considerable solidity."

General conclusions.—Chemical researches have taught us that the fish-liver oil ought to be considered as a very compound medicine. Greasy neutral matter, bilious matter, iodine, phosphorus, each of them well known as possessing great therapeutic efficacy—also a certain number of organic elements, such as butyric acid, gaduine, and some others, the medical action of which is less known—finally, various inorganic salts, as the phosphate and sulphate of lime, chloride of lime, phosphate and sulphate of magnesia, are the substances of which it is composed.

But it may be asked, to which of these components does the oil owe its special virtues? Is it to the iodine, fatty matters, phosphorus, or other principles?

If the diseases, for which the liver oil is administered with success, be duly reflected upon, it cannot escape any one that there are in each of them various indications to fulfil to obtain a cure. For the most part, there is debilitated digestion to be excited, nutrition to be regulated, secretions to be re-established, and the lymphatic system to be stimulated; while, on the other hand, the modifying of the organic nervous system is presented as one of the most important indications to be fulfilled. Neither the bilious matter nor the fatty matter, nor the iodine, nor any other principle, whatever it may be, taken alone, is capable of satisfying at the same time all these indications, and it is not to any of these substances in particular that the fish-liver oil owes its medicinal properties, and the faculty of fulfilling so different and so numerous indications. But it is by the union and co-operation of, if not all, at least the greater number of these substances.

In this state of things, the active principle of the fish-liver oil cannot be discussed in particular, like the active principle of cinchona; but attention ought to be paid, if not to all, at least to the principal elements of the oil, as each of them satisfying special indications which the diseases for which this medicine has been proved efficacious, present.

The medical researches having proved that the black fish-liver oil is more efficacious in rheumatism and scrofula than the other species, and the chemical researches having shown, on the other hand, differences, if not qualitative, at least quantitative, between the three kinds of oil examined, it follows that the principles that are in greater proportions in the black oil than in the other two kinds, ought to be considered as those which best fulfil the principal indications. Therefore it is not the neutral fatty matters, which are found in nearly equal quantities in the three species, nor the iodine, nor the phosphorus, nor the organic salts, which are found in greater quantity in the pale oils than in the black oil, which can be considered as more efficacious than the other principles for the cure of rheumatism and scrofula. It appears, then, that it is to the bilious matter and butyric acid, rather than the other principles, that the greater part of the therapeutic effect can be principally attributed, for they are the substances which are found in the greatest quantity in the variety of oil proved to be the most active.

As to the matter unknown up to this time, and which M. Jough first proved the existence of, in the product of the analysis of the different species of Gadus, and to which he applied the name of Gadine, it does not appear, on account of its insolubility, at least in the condition in which it was examined, to have a right to be considered as an active principle of the fish-liver oil. (*Gazette Médicale*, and *Dublin Med. Press.*)

—Dr. Bennett considers that the therapeutic action of cod-liver oil is due to its fatty composition, and its being perhaps more easily assimilated than other fats. He believes that in rheumatic and tubercular affections, the albuminous compounds are in excess, and the oily compounds deficient; that, therefore, the most rational treatment is to supply the deficient oily matters directly. He explains the failure of other oils to effect benefit, which might be expected, if the fatty matter is the active principle, upon the supposition that other oils, such as olive oil, are purgative. The author proceeds to state that he thinks cod-liver oil is destined, in the hands of the rational practitioner, "to be an important means of curing a class of diseases hitherto considered of the most dangerous and fatal character."

Speaking of the effect of this oil in phthisis, Dr. Bennett's testimony is greatly in its favour; and, in fact, it may now be satisfactorily demonstrated that there is no medicine or system of treatment which holds out so much encouragement in the management of consumptive cases. ("*On Cod Liver Oil*," *Edinburgh*, 1848; *and Monthly Journal, May*, 1848.)—*Ranking's Report on Pract. Med. in Abstract*, vol. vii.

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22. *On the Internal Use of Turpentine Oil in cases of Hemorrhage.* By L. Percy, M. D. (Proceedings of R. Med. Chirurg. Soc., June 27.)—The author, after noticing the fact that several writers—Adair, Nichol, Johnson, Warneck, Copland, Ashwell,

and Pereira—have spoken of the efficacy of the essential oil of turpentine in hemorrhagic diseases, observes that this remedy seems nevertheless to be little used by practitioners. In the cases in which he first made trial of it, hæmaturia of two years' standing, in an old man of eighty, was stopped in twenty-four hours by eight drops of oil of turpentine, and did not return. He has since used it in different cases of hemorrhage, and always with a favourable result. The cases in which its use is indicated are those of passive hemorrhage. It must not be employed in cases where there is an active determination of blood, and where the pulse is full. When the discharge of blood is the consequence of organic disease, as of disease of the uterus, or of tubercular disease of the lungs, the action of the remedy is not so efficacious; but the author has seen a case of scirrhus of the womb, in which the hemorrhage was for some time stopped by this remedy. The author has found the action of turpentine oil very rapid, an effect being manifest in a few hours, often after one small dose. In order better to ascertain its power, he used it alone, without having recourse to local astringents or cold applications, where he could do so without fear of endangering the life of the patient. He has used it most frequently in cases of menorrhagia and epistaxis; but he mentions, that it appears to him to be particularly applicable in the cases of hemorrhage attending typhus. He noticed the fact that turpentine exerts different actions on the body according as it is taken in large or small doses, being more readily absorbed in the latter case; and he remarks, that as its beneficial action in cases of hemorrhage must depend on its being absorbed, the inference would be drawn, that the doses in which it is given in such cases ought to be small. His experience confirms this conclusion. He has always found a dose of from eight to thirty drops sufficient. The best vehicle for it is almond emulsion, with a little gum Arabic. When there is pain in the abdomen, a few drops of laudanum may be added.—*Ibid.*

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23. *Carbonate of Ammonia in Scarlet Fever.*—The use of carbonate of ammonia in scarlatina was first advocated by M. Strahl, in Germany, and afterwards resorted to in France; in which latter country it is still highly esteemed and used by M. Baudelocque in the Hôpital des Enfants. This physician has not only used it in mild cases, but also in the malignant form of the disease, and where the eruption has receded, and in the consecutive dropsy of scarlatina. He sums up by stating that he has derived great advantage from its use in irregular scarlatina with cerebral disorder and depressed powers; in scarlatina attended with the production of false membranes on different mucous surfaces; in hemorrhagic scarlatina; and in the dropsy of scarlatina, whether confined to the cellular tissue or extended to the serous sacs. He has administered it in the form of mixture, simple or aromatized, and in gradually augmented doses.

There can be but little doubt of the efficacy of ammonia in the eruptive and also in typhoid fevers, acting as it does as a general stimulus to the system, and as a special one to the cutaneous and mucous surfaces; and indeed, it has been considerably employed in this country in scarlatina, but not so much in the character of a specific as it appears to be viewed by M. Baudelocque, as on account of its general and special action above indicated—an action particularly required where a debilitating poison, like scarlatina, is preying upon the system. The value of ammonia in the dropsy following scarlatina has been less appreciated, but it is certainly deserving of trial; for, *à priori*, we may anticipate benefit from this medicine by reason of its stimulant action upon the capillary system at large, whereby it influences nutrition at large, and particularly that of the mucous membranes. Thus it may restore the capillary system of the kidneys to its normal condition, removing the congestion present, and unloading the uriniferous tubes of their impacted epithelial particles, and so rendering the renal secretion natural and more active, relieve the systemic dropsy.—*Lancet*, Aug. 26, 1848.

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24. *On the Utility of Trisnitrate of Bismuth in the Diarrhœa accompanying Phthisis.* By Theophilus Thompson, M. D. (Proceedings of R. Med. and Chirurg. Soc., June 27.)—The author considers the trisnitrate of bismuth to surpass in efficacy and safety our most approved remedies for this complaint. He has taken every opportunity, during the last twelve months, of testing its powers, and has

preserved notes of twenty-one of the cases in which it was administered. Of these, eighteen were phthisis in various stages of progress, and three, bronchitis. In fifteen of the patients the diarrhœa was entirely removed; in four, transient benefit was experienced; and the remedy proved useless only in two instances. The dose administered was about five grains three or four times daily, usually combined with a little magnesia and gum Arabic. Dr. Thompson has referred to various authors who have written respecting the properties of bismuth, but has not been able to collect from them any evidence of its powers in the phthisical variety of diarrhœa, but he entertains a strong conviction of its peculiar appropriateness to this affection, and has obtained important conformation of his experience in a recent communication from Dr. Lombard, of Geneva.—*Lond. Med. Gaz.*, July 14, 1848.

25. *Case of Epilepsy cured by Sulphate of Zinc.*—Mr. Watson, of Dumfriesshire, narrates (*Lancet*, July 22, 1848), the following case:—

"J. H——, aged thirty-one, and unmarried, has been subject to epilepsy since she attained the age of fourteen years. She first menstruated about that time, and the epileptic fits returned regularly every six weeks afterwards, except once, when, owing perhaps to her having received a severe burn on the chest and neck from falling on the fire during one of the attacks, the succeeding interval was three months. She is tall, and generally healthy; menstruates every four weeks; her appetite is good; her bowels regular; she has no aura, nor is she apprised of the approach of the fits in any way whatever. She is generally engaged in household matters, and occasionally employed out of doors. Previous to 1846, several medicines had been tried for the purpose of removing or alleviating the complaint, and about the commencement of that year sulphate of zinc was administered. At first, the dose was two grains daily in solution, and for a few weeks it appeared to have little effect, but in process of time the intervals became longer, and on the 16th of December, 1846, when she had a return of the paroxysm, the interval had extended to sixteen weeks. I then increased the dose to three grains daily, and she remained perfectly well until the middle of May, 1847, when she had another attack. At the end of June she had a second, and about the middle of September a third, in consequence of which I augmented the quantity to four grains daily; since that time she has had no return of the complaint. In this instance, at least, the use of zinc has been attended with the most beneficial effects, it having not merely lessened the excitability of the system, and broken the habit of periodicity, but actually rendered the patient entirely free from the malady for nearly forty weeks. Nor can the improvement experienced be attributed to any other cause, such as free exposure to the open air, exercise, ablution, regimen, &c., as no greater attention was paid to these things during the use of the medicine than had been done previously.

26. *Hypertrophy of the Follicles of the Pharynx.*—M. Chomel has carefully investigated this pathological condition of the pharynx, and has given it the name of *follicular angina of the pharynx.* This affection consists in an abnormal development or hypertrophy of the follicles of the pharynx, of the pillars of the fauces, and of the uvula. It may exist at any age, but is more frequent between 15 and 30. It is much more frequent in men than in women, in the proportion of 17 to 5. Accompanying this lesion, M. Chomel noticed a peculiar structural condition of the mouth and nose,—the nasal fossæ being constricted, as also the anterior and posterior nares, and the upper lip short, exposing the teeth; a condition necessarily associated with breathing through the mouth open, and which may be a cause of the enlarged follicles, by its rendering secretion more active in them. This affection often coincides with anterior herpetic eruptions, and many patients are troubled with acne. Singers are subject to it, together with a thickening and redness of the mucous membrane.

In most cases, the disease advances slowly; when arrived at a certain stage it causes great inconvenience. It frequently commences with a slight cough, without expectoration, and is generally unattended to. When the secretion becomes abundant, then it becomes troublesome. The affection is marked by a feeling of constriction in the fauces; the patient exerts himself to expel masses of mucus, which are found over the entrance of the air-passages; he desires to drink a little water to allay the uneasiness or pain, which it will effect for a few moments. In slight cases, on depressing the tongue with a spoon, from two to ten little red points, of the size of a millet-seed and round, may be seen disseminated over the reddened mucous membrane. In a more advanced stage, these round points become discoid, or ovoid, and glistening; and in the most intense degree, we see the diseased parts projecting in the form of pillars, or projecting columns, from the sides; and lastly, these transverse folds may so entirely occupy the pharyngeal mucous membrane as to leave but a few small isolated patches of it in a normal state. The alteration of the follicles, however, is not always in relation with the intensity of the symptoms; for the latter depends much on the susceptibility or irritability of the patient.

It is not uncommon to see the follicles covered over by a thick, adhesive mucus, which must be removed before their condition is brought into view. The progress of this affection is essentially chronic; it will often spontaneously disappear; at other times will yield to very simple treatment; but sometimes also is very refractory, resisting all modes of cure. Speaking and singing aggravate the malady.

The cough attending it is guttural; it does not come from the chest, nor do the pellets of mucus, which are expelled in small quantities. The latter are small globular masses, of the size of a small pea, very adhesive, and semi-transparent; in the morning they are sometimes strewed with minute grayish-black points, consisting of inhaled carbon. The voice is generally somewhat altered; and as a similar change occurs in phthisis, some alarm may be created; but then the absence of the peculiar features of the latter disease will remove all disquietude on that score. The voice becomes soon worn out, and reading or speaking aloud soon involves the necessity of ceasing. Sometimes, owing to a piece of tenacious mucus, the patient is obliged to wait before he can articulate the smallest word. Singers perceive they have lost one or two notes, that the clearness of their voice is lost, as also its sweetness of tone.

The diagnosis presents no difficulty, unless the susceptibility of the patient be so great as to preclude examination, or render it very difficult, when care must be taken not to confound this condition of the follicles with the common normal hypertrophy of the mucous membrane and follicles, which is often present in advocates and singers, and which demands no treatment.

Cauterization is the most effectual and ready mode of treatment, but it is sometimes difficult to limit. Nitrate of silver, or dilute nitric acid on a sponge, may be used for the purpose. Caustics, however, should not be used in the first instance; gargles of borax and alum should be previously tried, and will in most cases relieve, if not permanently cure. The sulphurous waters of the Pyrenees and of Enghien, particularly the latter, have often proved useful—one or two glasses being used in a morning, gargling and then gradually swallowing. In summer, douches to the neck may be used as adjuncts. Reading aloud must be avoided, as also much talking, and the diet must be regulated. Acrid and irritating aliments must be refused, and care should be taken to masticate thoroughly parts of hard substances, as crust, which may mechanically irritate the pharynx.—*Lancet*, Sept. 2d, 1848.

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27. *Pharyngeal Pouches.* By Mr. Dendy.—Mr. G. S., after some affection of the tonsils and uvula, eight years ago, placed a pepper corn in his mouth, which suddenly slipped backwards and lodged in his throat. It remained there about a week, causing great irritation, but was eventually dislodged. He has ever since been aware of the temporary lodgment of foreign bodies in the same situation, but has not felt anxiety upon the subject. Gradually these lodgments seemed to increase, and large bodies became arrested in their course, the secretion of saliva becoming profuse. About two years since the uvula was excised, by which the complaint was much aggravated.

At the present time the patient is compelled to fill the pharyngeal pouch with soft solids, to the extent of two ounces, before he can get any food to pass into the stomach. He can at any time eject the contents of the bag.

In a second case, in the person of a bishop, now deceased, the affection came on imperceptibly, and could not be traced to any particular cause. The contents were often spasmodically expelled, and the breathing was occasionally interfered with.

Mr. Dendy, the narrator of these cases, appends the following remarks:—

As to the anatomy of these curious cases:—The pouch, I believe, usually dips down between the œsophagus and the vertebræ, occupying, in fact, the place of the œsophagus, which is pressed against the trachea, and suffers attenuation of its coats from this compression. It is also strained or puckered by various degrees of traction, constantly increased, of course, by gravitation and the weight of the ingesta. This at length forms a valvular communication between the pouch and the œsophageal canal immediately below the cricoid cartilage in front, and opposite the fifth or sixth cervical vertebra behind, thus not only impeding or entirely obstructing deglutition, but even preventing the introduction of a bougie or hollow tube, through which aliment might be admitted into the stomach, unless the relative position of the cavities be distinctly understood.

Now, what are the especial tissues which constitute the pouch?

May we not place the cases to which I have referred in the same category with those diverticula or pouchings, not only of the intestines, but of those other tubes which are frequently submitted to the influence of contraction and dilatation.

The lodgment of foreign or indigestible bodies will sometimes pouch the stomach itself. Amongst other persons, Dr. Baillie saw a capacious pouch thus and therein formed, which contained five halfpennies.

The cells of the colon are often immensely distended by scybalæ, especially in young women, although apparent regularity of defecation may have averted the slightest suspicion of such a state.

Although the etiology may differ, we may adduce, as analogies, those dilatations found above the contractions of tubes, whether by spasm or thickening of coats. We may refer to the bulging abscess and infiltration behind urethral strictures; to the bagging of the bowel, when its calibre is diminished or contracted; and I may express my belief, that many cases which have been considered to be merely stricture, are indeed closely allied to those with the recital of which I commenced my observations.

And does the bag consist, or not, of the entire pharyngeal tissues?

I believe that it may consist of thickened mucous membrane only, and that continued and progressive pressure (as in the lodgment of a body in the sacculus formed by the rather sudden contraction of the pharynx, into the œsophageal tube, increased by the effort of severe coughing, especially when combined with pulmonary disorder, as in the case of my present patient and the bishop), may have actually split or separated the muscular fibres of the canal, thus constituting a hernia of the mucous membrane analogous to the formation of true aneurism from muscular effort, or, perhaps, more nearly allied to those cases of double bladder, one of which is recorded in the last volume of the *Transactions* of the Medical Society. The coats of gastric pouches are usually much attenuated, and that not from inflammation or ulceration, but from mere mechanical pressure.

Now, on the assumption that many of these interesting cases may have been mistaken for œsophageal stricture—a simple contraction of canal—we may confidently point to one probable cause of difficulty or failure of the introduction of the bougie, in consequence of the *valvular orifice* (for such, indeed, it may be termed), of the œsophagus, and the constant slipping of the bougie into an artificial cul-de-sac. A point in practice may hence be adduced. In cases of difficulty, it would be well to place the patient nearly on his back, so that the pouch may rest on the spine, and then to press the bougie forwards on the trachea, at the same time uplifting the trachea itself. If the existence of a pouch be determined, the same plan should be adopted, and this immediately after the emptying of the pouch.

Regarding the permanent relief or obliteration of these bags, I cannot yet speak practically. I contemplate, however, the employment of a canula and sponge, slightly wet with a very strong solution of nitrate of silver, if the symptoms of my present case should, by their aggravation, warrant this proceeding. At the same time, I should impart nutrition as much as possible, or altogether, through the elastic tube introduced into the stomach, so as to close the mouth of the pouch, and put it, as it were, out of office.

I believe that relief might be insured on one or other of these principles—either the shrinking or contraction of the bag, by its being kept empty and compressed, or by the adhesion of its sides, so as to produce complete obliteration; for although the mucous membrane is not so prone to adhesion as the serous tissue, we have very sufficient analogies to warrant that it might ensue in such a case.—*Prov. Med. and Surgical Journal*, Aug. 9, 1848.

28. *Practical Remarks on Croup.* By Dr. H. Zeroni —The most ordinary form of croup is *Congestive Croup.* This form generally occurs at a time when there is a tendency in the weather to induce catarrhal affections, manifesting itself suddenly, generally in the night, and without any precursory symptoms; with the exception, perhaps, occasionally of a slight cold in the head. In this form of the disease, children wake from a quiet sleep with a sharply barking kind of interrupted cough, raise themselves in bed, and begin to cry in apparent distress, a piping hissing inspiration being occasionally heard, as well as in their coughing. The countenance is often flushed and turgescent, but the respiration is not hurried, and but little febrile excitement is perceived in the pulse. When the attack subsides, the child again falls asleep, and rests quietly till the morning; occasionally, however, the attack recurs, respiration becomes more noisy, rattling and hissing, and the child either vomits, or simply makes an effort to do so. This form of the disease requires little more than careful nursing for its cure; the child should be kept in bed, be made to drink copiously of warm drinks, partake freely of some oily emulsion, and have a sponge steeped in hot water laid on the neck. If, however, a hissing hurried respiration causes apprehension of a recurrence of the attack, the most effectual means is to give an emetic, continuing its use until the child has vomited several times. (This form of the disease appears to be induced by an hereditary and acquired predisposition.) To young children during the first year, Dr. Zeroni gives ¼ gr. cupr. sulph. every quarter of an hour.

The second form is *Inflammatory Laryngeal Croup.* This is far more serious in its nature, and *never* occurs without premonitory symptoms, or where it may not be referred to the action of some injurious influences. It may have been induced by the pre-occurrence of the milder form, or owing to exposure to bad weather immediately after recovery from a former attack. The characteristic symptoms of this second form of croup are as follows: Broken, rough, whistling cough; the inspiration is quick, and has a sharp sound: the child is restless, moves the hands, bringing them frequently to the head and neck. The face is hot, red, or purple, the neck swollen, whilst the pulsations of the heart and arteries are rapid. When the attack subsides, the child becomes strikingly animated, enters into his customary sports, and evinces no desire to lie down or to go to sleep. Respiration after the first attack, and even after several attacks, is quiet and natural; it becomes, however, gradually more hurried and noisy, and a faint rattling is heard, which assumes by degrees a metallic sound. Hoarseness increases, and the voice becomes low and whistling. The attacks come on more frequently, and the child is more restless and irritable during the periods of intermission, whilst the pulse grows fainter and fainter. This uneasiness, however, ceases. The child dozes continually, lies on its back, with its head thrown back and pressed into the pillow; the throat protrudes, the countenance is drawn, pale, and swollen, somewhat of a bluish or yellowish tinge. The eyes are sunk, and half shut; whatever is handed to the child is impatiently pushed aside, and nothing can induce it to drink. The respiration is loud and rattling, all the muscles of the neck act convulsively, the pulse is frequent and small. The child dies either in this state of sopor, with the symptoms of paralysis, or in the midst of convulsions induced by another choking attack of cough.

This form of disease requires prompt and energetic treatment. No time should be lost in abstracting blood, and no apparent amelioration of the symptoms should hinder the frequent application of leeches, in proportion to the age, until the child begins to evince an appearance of exhaustion from loss of blood. A second important means is cupr. sulph.; from 3 to 4 grains of which should at first be given in order to induce vomiting, and the dose should be then reduced to ⅓ or ¼ of a grain, every half hour, or hour, until the disease assumes a favourable turn. Dr

Zeroni also speaks of the invaluable aid he has derived in some cases of *this* form of croup, but not in any other, from a combination of musk and opium.

We now proceed to notice the third form of croup.

Inflammatory Tracheal Croup.—This is likewise attended by premonitory symptoms, and induced by pre-existing or extremely injurious influences. It generally occurs in the months of February and March. Children catch cold, have a dry, somewhat rough, cough, which being often disregarded, they are frequently suffered to expose themselves to cold and damp; the hoarseness and cough gradually increase, but this state often continues for upwards of a week before the occurrence of the fit of choking, and before medical advice is sought. After the first attack, the child is often cheerful and even at times extremely merry. The voice is quite gone, the respiration somewhat hurried, and more or less rattling; the cough not frequent, short, rough, unattended by a whistling inspiration, no expectoration, or if any, merely a white frothy mucus interspersed with a few streaks of blood; the pulse quick, the skin warm, and the urine natural. If the little patients are able to speak, they complain of pain in the neck and the middle of the chest. By degrees the choking fits become more frequent, the respiration more hurried and difficult, and the tone accompanying it rougher and more croaking. Extreme hilarity and the most remarkable movements alternate with excessive lassitude, during which the child sinks down exhausted, falls asleep, exhibiting the most marked disinclination to be spoken to or touched. The cough becomes a noiseless suppressed expulsion of air, the attacks are accompanied by a violent noisy rattling sound, the muscles of the neck become powerfully convulsed, and the head is thrown far back. The pulse is small and quick, the skin drawn, the muscles extremely relapsed, the face swelled and puffy, the lips blue. The child dies in a state of sopor, as if from asphyxia. This form is more fatal to children under two years of age, than to those who are older. It is met with in children of six, or even occasionally, nine years of age.

The application of leeches is of the greatest importance, since on this depends the result of the whole treatment. If a sufficient number of leeches be early applied to the neck and chest, we may regard the termination of the disease as probably favourable. Emetics do not appear to have much influence here, although they occasionally relieve the respiration.

The fourth form, which is designated by Dr. Zeroni as *Aphthous Croup*, is the most dangerous, but fortunately also the most uncommon; it has only been observed in autumn, during a continuance of stormy, cold, and rainy weather. It never occurs unattended by premonitory symptoms. The child is somewhat excited, occasionally flushed, and appearing from time to time to have transient febrile symptoms. As, however, it is cheerful, sleeps well, and has a good appetite, these symptoms are too often neglected, and the child is suffered to go out in the damp or cold, until at last it complains of pain on swallowing. On examining the throat, the tonsils are found to be somewhat swollen, reddish, and covered here and there by a yellowish-white puriform investment. The submaxillary glands are swollen. The child continues, however, cheerful, and there is scarcely a trace of fever. The aphthous streaks or points now extend gradually more and more, approaching each other. On removing part of this investment from the tonsils, we find that the subjacent membrane is of a brownish-red colour, but not dry. Deglutition becomes more painful, but still there is no fever, and it is not till the fourth or fifth day that the symptoms assume a more serious character. Hoarseness comes on, a low singular kind of cough is heard, and occasional oppressive sensations are experienced. The disease soon runs its fatal course, and the child, after several days of indescribable suffering, dies in a state of sopor, under circumstances similar to those of which we have already spoken. A prophylactic mode of treatment seems the only one that is of avail in this form of croup; and, considering the nature of the disease, too much stress cannot be laid on those means of prevention under the control of parents—such as prompt attention to any symptoms of indisposition manifested by young children, and care not to expose them to the open air until all morbid symptoms are entirely removed; since Dr. Zeroni mentions that where once this aphthous affection of the tonsils was established, he never yet succeeded in saving the child; leeches, tartar-emetic, and calomel being all without avail. The only means which he considers at all likely to produce a favourable result, are the external application of caustics, as suggested by Aretæus. Dr. Zeroni considers that this aphthous affection of the tonsils may occur in adults, although in their case he has never observed a fatal result. The disease may manifest itself alone, or conjointly with febrile diseases; but he has not found that in this latter case the local affection rendered any change necessary in the mode of treatment for the main disease.

The fifth form of croup, observed by Dr. Zeroni, is *Suppurative Croup.* This is invariably found to have been preceded by a fully developed catarrh, and usually occurs at the close of winter, and the beginning of spring. It begins with more or less fever, restlessness, insomnia; the cough that was previously loose, becomes dry, rough, and barking, without being attended with a whistling inspiration, or a metallic sound. The cough comes on by fits, during which the child tries to sit up, bends the head forward, and puts its hands to its ears, tongue or mouth. The attacks are not attended by choking, but cause distress by the continuance of the short broken cough. The child is hoarse from the beginning of the disease, but loses his voice entirely after a time; cases, however, occur, in which the cough is at first loose, and the voice clear, but where there is much fever at the beginning of the disease, and even strongly marked delirium occurring at night. Fever gradually increases, the child sleeps almost continually, actual suffocative fits at length come on, the respiration becomes hurried, gasping, and rattling. The child is pale and appears swollen; and finally torpor supervenes, with an extremely quick pulse and profuse perspiration, and the child not unfrequently dies in convulsions.

If the disease is neglected, it generally proves fatal to infants and very young children from the ninth to the eleventh day. In adults, it may be prolonged to the fourteenth or eighteenth day; in the latter case the attacks are much more violent. The suffocative attacks which generally supervene on the seventh day are most distressing; the child starts up with violence, tears, scratches, and bites everything it can lay hold of, often tearing its hair and biting its hands; it appears to be in most fearful struggle, and in the height of its agony, the hoarseness suddenly disappears, and it cries in a loud voice for help; the short cough becomes looser, and mucus is expectorated, the fever abates, and finally the dreadful sufferings of the little patient terminate in symptoms of paralysis.

This form, like the others, demands a prompt and early application of leeches, which must be repeated with a frequency proportionate to the age of the child and the violence of the fever; it is almost the only thing to which recourse can be had, but as soon as the cough becomes somewhat less distressing, and the fever abates, a favourable termination of the disease may be hoped for; occasionally, however, much service is derived from cupr. sulph., given in sufficient doses to produce vomiting; this must be done when the cough and fever have abated, and the suffocative attacks have begun. The above forms of croup are only met with in children, and seldom after their sixth year. Dr. Zeroni scarcely attaches any faith to the opinion entertained by many, of the fatal nature of croup in adults. He says that he certainly has observed all the symptoms of croup most strikingly manifested in women, but these were found to depend on uterine derangement, and yielded to a mode of treatment adopted with reference to diseases of the latter kind; and he considers that where adults have sunk under croupous symptoms, they must be ascribed rather to œdema glottidis than to genuine croup.—*Brit. and For. Med. Chir. Rev.*, July 1848, from *Henle u. Pfeuffer's Zeitschrift für. rat. Med.*, 1847.

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29. *On Diabetes.* By R. B. Todd, M. D.—The *Prov. Med. and Surg. Journal* (June 28) contains an interesting lecture on diabetes by Dr. Todd, with the particulars of two cases of the disease treated in King's College Hospital. The following are the inferences which Dr. Todd draws from these two cases:—

1. The first of these is, that the azotized dietetic plan of treatment is efficacious; that the patients were more benefited by it than by any other means; and that the admixture of a small quantity of vegetable food did not very materially interfere with its favourable operation.

2. The evidence furnished by these cases is opposed to Bouchardat's theory, that the sugar is wholly derived from amylaceous food, and is little, if anything, short of a refutation of it. Take, for instance, Hardy's case: when he was put into the solitary ward, he was deprived of all amylaceous food, and yet he still

continued passing from two to three ounces of sugar daily. But it may be said that this was furnished by the greens, which he then took—this, however, could not be the case, for they would hardly weigh as much as the sugar that was evacuated; but there was one period in which he did not even take greens; he took no vegetable food whatever, but lived entirely on meat, and that deprived of fat as much as possible. This period was from the 15th to the 24th of December; notwithstanding, however, this total exclusion of all vegetable matters from his diet for nine days, he evacuated in that time from twenty-five to thirty ounces of sugar, and his own bodily weight was all the while increasing. Whence, I would ask, could all this sugar have been obtained? The same circumstances occurred in Bowles's case though not, perhaps, to so striking a degree.

3. The great increase of the power of the stomach is truly remarkable; these men found no difficulty in digesting four pounds of meat, besides several eggs, in one day, a task twice as great as any ordinary stomach could perform. The highly developed condition of the mucous membrane of the stomach was, no doubt, associated with this exalted power of digestion, and probably exists in all these cases.

4. The fact that sugar could not be detected in the substance of the kidney, goes to show that it is not there secreted, that it does not enter into any organic connection with the elements of the kidney, but merely percolates in solution through it; hence the disease of the kidney must be secondary. The sugar doubtless reaches the kidney in solution in the blood, and there acts upon that organ as a diuretic, passing possibly dissolved in the water that filters through the Malpighian bodies, and not being attracted from the blood through the walls of the tubes.

5. The comparative conditions of the epithelium of the liver and kidneys are very singular, and I am not aware that a similar observation has been previously made; it would tend to show with what avidity all carbonaceous matters, fat as well as sugar, are directed to the kidney, in this disease. Most probably, to some extent, the fat of the liver goes, in common with fat from other parts of the body, to the formation of sugar; but this does not account for the deposition of fat in the epithelium of the kidneys.

Lastly, these cases justify the conclusion that this disease is essentially one of the primary organs of digestion, whereby all substances readily convertible into sugar are quickly so converted; and that sugar is not digested, but passes into the blood unchanged, whence it is rapidly eliminated by the kidneys. We must not forget that this was, in fact, the view taken of this disease by Dr. Rollo, an English physician, who was the first to suggest the plan of treatment, which all experience proves to be the most beneficial.

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30. *Statistical Researches on Chorea.*—Dr. Easelmann, after collecting reports of cases from different authors, and adding to them his own, finds that females are much more prone to chorea than males, in the proportion of 73 to 27 in 100 cases. Up to the age of 11, of 33 patients, 22 were girls, 11 boys; from 11 to 15 years of age, of 45 cases, 34 were in females, and but 11 in males; above 15 years old, of 22 patients, 17 were women, and only five men.

Thus, whilst the proportion of males remains the same before and after the age of 10, the proportion of females increases remarkably from the 10th to the 16th years—a fact which leads to the conviction that the period of puberty exercises a great influence on the development of the disease.

Respecting the causes of chorea, fright is the most common. Thus, in the 100 cases, 31 were referable to this cause. Next in the category, rheumatism appears to be a not uncommon cause, eight cases in 100 being traced to it. In 42 instances, the exciting cause could not be arrived at.

The interval elapsing between the operation of the exciting cause and the onset of the morbid phenomena, was not noted in 74 cases. In eight, the chorea manifested itself immediately, in 13, after a week, and in five, after two weeks or more.

Of the success of remedies used, purgatives alone, or combined with diet, were successful in six cases, and of benefit in another; two cures are referred to rhubarb administered in port wine; arsenic was employed in seven cases, in two with success; iron in 29, effecting a cure in 19, and benefiting in two cases; zinc, in the form of the sulphate chiefly, effected a cure in 45, and improved the state in two others. Quinine, gentian, chamomile, and nux vomica were tried in nine instances, and cured in three. Antiphlogistics were used with three patients, curing two, and relieving a third. Electricity has proved of great service in old and rebellious cases, chiefly in young women in whom the chorea had an hysterical character; and in children, where the disease was not dependent on irritation; nine cases of cure out of 15 are attributed to this agent, but in five of those nine cases oxide of zinc and carbonate of iron were conjoined in the treatment. Affusion has also succeeded, but not to such an extent as electricity.

In fine, of the 100 cases, 80 were cured, seven nearly cured, ten relieved more or less, and three died. The duration of treatment was for three weeks in 24 cases, from three to six weeks in 40, from six to eight weeks in 23 cases, and from two to three months in 13 other instances.—*Lancet*, July 15, 1848.

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31. *Epidemics of Fever.*—The past year has been signalized by the almost universal occurrence of outbreaks of fever, varying in intensity, but, for the most part, exhibiting a malignity which has been followed by unprecedented fatality. Independently of the interest which attaches to these fearful visitations as matter of scientific reflection, the recent epidemic may claim a deeper hold upon our minds, of another character, arising from the awful ravages committed among our own ranks, and the consequent sacrifice of every worldly comfort to hundreds of those helpless ones in whom we ought all to take a personal interest.

Histories have been furnished of several of these epidemics, or, rather, of the same epidemic as it appeared in different localities, of the principal of which we purpose to give a brief analysis.

Dr. Paxton, (*Prov. Med. and Surg. Journal*, Nov. 3, 1847,) of Rugby, describes fever as it appeared in a mild form in that neighbourhood. It is stated by him to have been generally preceded by diarrhœa, and to have rarely been fully developed when that symptom was judiciously treated. The febrile symptoms are said to have declared themselves under three degrees, and were recognized as follows:

The countenance expressed stupefaction; chills followed by heat occurred every half hour, with headache, quick pulse, furred tongue, epigastric pain, loaded urine, &c. These were the symptoms of the milder form, and soon subsided. If, however, the noxious influence had been more decided in its effects, the second degree of fever was observed. This differed from the first chiefly by its greater intensity. The patient, at the early stage, had a deep flush on the cheek, alternating with paleness; dry skin; thirst; thick, drab-coloured secretion covered two-thirds of the tongue; the pulse rapid, i. e. from 110 to 130; urine turbid. Uniformly there was a certain amount of cerebral disturbance, indicated by moaning or crying out, with sudden sharp pains. A restlessness and delirium existed in most cases, and led one to suspect meningitis. After the subsidence of the latter symptoms, marked pervigilium was observed, which was followed by unusual torpor.

The third degree exhibited the common characteristics of typhus.

In referring to the treatment of this epidemic, Dr. Paxton takes occasion to criticise the opinion that wine and a cordial plan of treatment are necessary in fever, and illustrates his position by the detail of cases in which mischief was supposed to have arisen from this practice. He proceeds to state, that the successful treatment of this epidemic depended on the strictest attention to regimen; errors in diet were fatal. All kinds of stimuli had the effect of increasing arterial action, congestions, and cerebral disturbance. It was only in the stage of *perfect subsidence* of the malady, that wine could be taken with impunity. He remarks that he had often to regret the permission he had given to use wine at too early a period. The most mild species of nutriment were the best for the patient. Time after time has he known a generous diet, such as beef-tea and wine, to derange the viscera, and to have a direct tendency to excite organs already too much excited by febrile phenomena, and the consequences were invariably a correspondent depression of the vital powers. The principle which suggests wine, and the highest nutriment in low fever, in theory is, he says, plausible enough. "To oppose what was esteemed strength to weakness, is a theory which readily gains an ascendency in the minds of those who are ignorant of the management of diseases. They are haunted by the single perception of *debility;* but the exhibition of wine, to counteract the debility, only involved the patient in additional dangers. At the advanced stage of fever, wine is the medicinal extreme unction for the patient's dismissal. In the earlier stages, it may be symbolized by the golden cup filled with abominations." There could be no compromise, he observes, between wine and the Rugby fever. It was not long before he found, that either the nature of the fever, or the peculiar habit of persons in this locality, would not allow of the administration of stimulants without decreasing the chances of recovery.

These remarks respecting the use of wine in fever, are certainly not in accordance with the opinions of the best authorities, and differ widely from the views expressed in the following communication by Mr. Bree, of Stowmarket.

Mr. Bree gives the history of an epidemic fever as it was witnessed in the parish of Finbourgh, in Suffolk, the account of which embraces points of great interest, more especially as respects the disputed point of contagion, the operation of which on the cases in question he establishes beyond the possibility of doubt. In the treatment of the disease he exhibits a full acquaintance with what we believe to be the most satisfactory therapeutics of fever at present known. The indications he kept in view were:

1st. To obviate *the effects* of local congestion, and of what he believes to be in fever *altered* blood; *which effects*, again, he believes we see in or *about* the capillary system, or in ulceration of Peyer's glands, &c.; and,

2d. To prevent his patients from dying by asthenia; to keep them, in fact, alive.

The first indication he attempted to fulfil by the use of the pulvis sodæ comp. of Guy's Hospital, a most useful medicine in these cases. It is composed of carbonate of soda, compound chalk powder, and calomel; sixteen grains contain one grain of calomel. Of this he gave from five to twelve grains every four hours, with or without a solution of the carbonates of soda and ammonia.

The second indication he endeavoured to fulfil by the administration of port wine, with or without brandy, in large quantities.

In the cases he has detailed there were frequently abdominal and thoracic complications; in one case there was decided pneumonia, but he did not on this account omit the wine, though he pushed on the mercury. He was equally regardless of delirium, which is, probably, always an effect of innervation in these cases; and of the dry tongue. Whenever he found unequivocal indications of debility, as evidenced by a quick, thready, irritable pulse; *trembling;* sordes about the mouth and teeth, &c., he invariably gave wine. The result of the cases related fully bears out the propriety of the practice.—(*Prov. Medical and Surg. Journal*, April 15, 1848.)

The fever which has recently prevailed in and about Kilkenny has been described by Dr. Lalor (*Dublin Quarterly Journal*, Feb. 1848), under the name of "gastro-enteric fever," derived from the prominence of gastric and intestinal symptoms. The invasion of this form of fever was sudden, setting in, in general, with rigors, followed by delirium or dullness of intellect, vomiting, diarrhœa, pains in the joints, &c. After the continuance of these symptoms for six or eight days, the fever usually subsided. The relapses, which were frequent and often fatal, assumed one of four forms:

1. Pyrexia attended with severe pains, similar to rheumatism, often terminating favourably in from three to seven days. 2. Pyrexia, with distressing nausea, and vomiting of a grass-green fluid; prostration; cold, clammy skin, &c. 3. A combination of the two preceding forms. 4. A species of protracted fever with nausea, irregular bowels, and variable pulse; termination usually favourable.

In 1845, a purpuric eruption began to be a concomitant of the fever. In the spring of 1846, this combination became more general, the fever at the same time putting on a more typhoid type with diarrhœa, general œdema, and gangrene. The eruption generally appeared first on the upper part of the chest, subsequently on the abdomen and extremities, seldom on the face. In bad cases there were large distinct bullæ filled with a bloody serum. The gangrene usually appeared in the mouth, the pudenda, or anus; bad sores and gangrene of the extremities were rare.

The treatment followed by Dr. Lalor in this fever was, in the first instance, expectant. In collapse, external warmth and stimulants were employed. Blisters were found useful for the præcordial pains, but leeches and depressing diaphoretics were ill borne. In the relapses, a stimulating treatment was imperatively called for.

The post-mortem appearances in fatal cases of this fever were chiefly remarkable in being associated with or produced by purpurous extravasations, similar to those on the skin. These were found on the peritoneum, pleura, mucous membrane of the stomach, intestines, and bladder. Apoplectic effusions were also found on the lungs and in the substance of the muscles. On the mucous surfaces these blotches terminated in ulceration, which were of two kinds, one small and circular, with a disposition to granulate, the other sloughy, with fungous granulations similar to the spongy sanies of scorbutus. The liver was of normal size, mottled and friable; the spleen was generally enlarged; the kidneys sometimes presented purpuric spots; the heart's substance generally softened.

In alluding to the causes of this epidemic, Dr. Lalor hesitates to attribute it entirely to the effects of famine; but he admits that the purpuric or scorbutic character was associated from the date of the failure of the potato crop, and increased as destitution advanced. The fever appeared to be decidedly contagious.

Mr. BOTTOMLEY, of Croydon, has also published an account of fever as it appeared among the Irish labourers who had come into that part of the country to get up the harvest. The type of fever is shown to be the "simple continued," with tendency to typhoid depression. The writer states that there was no reason to believe it infectious, unless in the event of close crowding of the patients and inattention to ventilation.—(*Prov. Journal*, Dec. 29, 1848.)

Lastly, Dr. ORR has furnished a historical and statistical sketch of the epidemic fever in Glasgow; and, amongst other useful information, gives a vivid picture of the dangers which were encountered by the medical attendants. In one parish alone, seven out of seventeen surgeons took fever, three of whom died. In another district, containing seven surgeons, three perished. In all, no fewer than 117 persons, engaged in attending fever patients, contracted the disease, of which number 30 were ascertained to have died. (*Ed. Med. and Surgical Journal*, No. 175.)—*Ranking's Report on the Progress of Pract. Med.* in *Retrospect*, vol. vii.

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32. *Cold Douches in the Treatment of Intermittent Fever.*—M. FLEURY has presented a memoir to the French Academy of Sciences, on the use of cold douches in ague.

He was led to these researches by the assertion of Dr. Currie, that the accessions of ague might be prevented by the affusion of cold water, and that by its repetition four or five times, the disease might be entirely cured. M. Fleury has employed this means one or two hours before the expected paroxysm, in the form of a general douche, and in that of a local one to the region of the spleen.

The ends attained by the above plan he believes to be—1. A shock exerted on the nervous system, and on the general capillary circulation. 2. The opposing of a vigorous reaction and general stimulation of the surface to the cold stage of the fever. 3. A modification of the circulation of the spleen, combating congestion of that organ.

He has pursued this treatment in eleven cases of intermittent fever. In seven of them the disease was recent, and there had been but from three to seventeen paroxysms; quinine had not been administered in any one. In two cases, the spleen preserved its normal size; in five, it was enlarged: a cure was effected in all. In one, a single douche sufficed to cut short the fever. In two others, two affusions were necessary to do so, and to restore to the spleen its natural dimensions. In the remaining four, affusion was practiced three times.

In those patients where two or three douches were used, the effects produced were constantly the same. By the first application, the accession was retarded two or three hours; the rigors less violent, and shorter by one-half or five-sixths the time; the heat and headache were equally lessened; and the total duration of the fit was diminished by at least one-half. Age and the type of the fever did not exercise any appreciable influence over the effects of the treatment. Where, however, the volume of the spleen was larger, the time required for the cure was augmented. Four patients had suffered from the disease for from two to eleven months, having had several relapses, and resisted the action of sulphate of quinine, and presented the anæmia, emaciation, anorexia, &c., seen in those who have been long affected by ague. Three douches were required in two of these cases, and five in one other, to remove the fever; but from eight to eleven were necessary to cause the splenic engorgement and the cachectic symptoms to disappear. In one case the liver was very greatly enlarged; but this condition disappeared by perseverance with the affusions.

M. Fleury arrives at the following conclusions:—1. In the treatment of recent intermittent fever, simple, and with little or no engorgement of the spleen, cold douches may be substituted for quinine. 2. In the treatment of old-standing ague, where several relapses have occurred, and there is considerable enlargement of the spleen, or of the liver, with a cachectic condition, cold affusions are to be preferred to quinine; for they cut short the fever, restore the viscera to their natural volume, and remove the cachexy more rapidly and more safely than quinine; the latter, in large doses, not unfrequently acting injuriously upon the nervous system, or on the digestive organs. (*Bulletin des Academ., and Lancet.*)—*Ibid.*

SURGICAL PATHOLOGY AND THERAPEUTICS AND OPERATIVE SURGERY.

33. *The Question of Amputation in Gunshot Wounds.* By M. Malgaigne.—This question has formed the subject of a most interesting debate in the Academy of Medicine, Paris. MM. Roux and Baudens having concluded their communications,

M. Malgaigne observed, that the point towards which it was more especially his desire to call the attention of the Academy, was the treatment of fractures of the femur by war projectiles. It was a generally received opinion, more particularly promulgated by military surgeons, that such fractures required amputation. This was the practice of Ravaton, one of our great military authorities; Larrey, less exclusive than his predecessor, thought the extremity might be still preserved when the shot had only occasioned a simple fracture of the lower fourth or even third of the femur; but that all fractures occurring higher, in consequence of a gunshot wound, absolutely required amputation. M. Malgaigne then recalled the opinion of Ribes, who inclined towards considering all injuries of the femur, occasioned by musket balls, as cases for amputation. M. Malgaigne himself had adopted at one time this mode of thinking, and had applied it upon a field of battle; but the results were most unsatisfactory, and in the Polish campaign he had lost all the cases of amputation performed upon the thigh after gunshot wounds. On his return to France, M. Malgaigne had endeavoured to explain to himself this frightful mortality; and, on reading over the memoirs of M. Ribes, he was struck with an important fact, which that author honestly acknowledged:—"Out of 4000 invalided soldiers," said M. Ribes, "he had not found a single case of injury of the femur by shot. This was a proof, in his opinion, that all the men who had suffered from such wounds had died." But, on the other hand, amongst these 4000 cases, M. Ribes had not found a single case of amputation of the thigh—a fact which proved to M. Malgaigne that all these operations had been fatal, and that amputation did not afford more chances of preserving the lives of the wounded than the opposite practice.

On inquiring further into the details of the question, M. Malgaigne had arrived at this conclusion, that the same doubts might with justice be applied to all amputations performed in the treatment of injuries by war projectiles.

The question of immediate amputation might be said to be one of the most important points of modern surgery. In the ancient Academy of Surgery it was the object of a long debate; and Boucher had said that two-thirds of the cases of amputation terminated fatally.

After Fontenoy, out of 300 cases, Faure asserted that only thirty or forty were cured.

Bilguez states that, during the seven years' war, scarcely one or two cases had been saved out of numberless operations.

On the other hand. M. Malgaigne would lay before the Academy more recent statistics of a very different tendency.

Fercoq said that, of 60 primary amputations, only 2 cases did not recover, *i. e.*, 1 out of 30.

Percy was not quite so fortunate; of 92 amputations of the leg, thigh, and arm, 6 cases died, *i. e.*, 1 out of 15.

Guthrie, at New Orleans, performed 45 immediate amputations; 7 cases terminated fatally—1 out of 7; at the battle of Toulouse, 47 amputations, 9 deaths—1 out of 5.

The English forces during the Spanish war presented 291 amputations, 24 deaths —1 out of 8.

Del Signore, at Navarino, 31 amputations—1 death.

The English surgeons at Aboukir and Camfordomer reported 30 amputations: all were successful.

Larrey, on the 27th and 29th Brumaire, 13 amputations—2 deaths.

M. Malgaigne had further drawn up a list of the amputations performed in the hospitals of Paris, for traumatic lesions, during a period of ten years—from 1836 to 1846. These statistics were instructive. 165 amputations had been performed upon men, and 17 upon women. The mortality had been 107 for the former, and 10 for the latter. How were these amputations subdivided? The following was their classification for the men:—

	Amputations.	Deaths.	
Thigh,	44	34	over 3–4
Leg,	67	42	near 2–3
Foot,	8	5	over 1–2
Shoulder,	7	7	
Arm,	29	17	nearly 2–3
Forearm,	10	2	" 1–5

Thus, in Paris, in the best hospitals, under the care of the first surgeons in the world (!), the average mortality of primary amputations was equal to two-thirds of the cases.

These were certainly unexpected results, and must, doubtless, cast some doubts upon the numerous successes which had been previously enumerated.

Circumscribing the question to narrow limits, *i. e.*, to the results of amputation in fractures of the thigh or leg, M. Malgaigne could bring forward an equally important document. In 1830, Dupuytren had under his care 13 fractures of the thigh in which he did not operate; 5 cases cured, 7 died; another was operated at a later period, and proved fatal.

In fractures of the knee or leg, Dupuytren performed 5 primary amputations of the thigh, 3 patients died: 4 secondary amputations, 4 deaths.

For the other fractures of the leg, in which the same surgeon did not amputate, 14 were fractures of both bones, 8 died; 2 of the tibia, 1 death; 2 of the fibula, 1 death. He performed two primary amputations of the leg: both cases terminated fatally.

Such were (continued M. Malgaigne) the precise documents existing in science: they tended to prove that the opinion of military surgeons, relative to the advantageous results of primary amputations, did not rest upon a very solid basis.

The following general conclusion might be adopted, viz., that, in attempting to preserve the limbs of the wounded, the surgeon did not cause them to incur any greater risks than if amputation were performed.

All these considerations had greatly modified M. Malgaigne's opinions on the subject, and had changed his practice in similar cases.

The events of June had furnished him with a melancholy occasion of verifying again the correctness of his newly adopted views; and this led him to expose before the Academy the results he had obtained at the Hôpital Saint Louis, in a service where an enormous number of wounded had been admitted.

He would acknowledge at once, that in some wounds all debate about the propriety of amputation should be set aside; thus in gunshot wounds of the hip or knee joints the operation was evidently unavoidable. These cases excluded, the following had been the result of the fractures, in which M. Malgaigne had refrained from amputation:—

5 fractures of the thigh:	2 recovered,	2 deaths,	1 secondary amput.
6 fractures of the leg:	2 doing very well,	4 deaths.	
2 fractures of the tibia:	2 ditto.		
4 fractures of the fibula:	2 ditto.	2 deaths.	
3 fractures of the arm:	1 recovered,	2 deaths.	
5 fractures of the forearm:	5 ditto.		
2 fractures of the metacarp:	1 doing very well,	1 death.	
27	15	11	1

M. Malgaigne had performed only one primary amputation, which he was almost ashamed to acknowledge, after the energetic reprobation of which it had been the object from M. Roux, an amputation of the elbow. It might be pleaded in extenuation that the patient had recovered. M. Malgaigne would acknowledge he did not understand M. Roux's motives for proscribing this operation.

Thus, out of 17 fractures of the thigh and leg treated without operation, 8 cures had been obtained. Dupuytren, out of 31, had obtained 13 recoveries. M. Malgaigne's results were, therefore, more satisfactory than those of M. Boucher, who considered that primary operations sacrificed the lives of two-thirds of the patients.

M. Gosselin, Dr. Malgaigne's colleague at Saint Louis, had also abstained from operations. The following were his results:—

3 fractures of the thigh:	1 gives hope,	2 deaths.	
3 fractures of the leg:	1 uncertain,	2 deaths.	
4 fractures of the tibio-tarsal joint:	1 doing well,	1 death,	2 secondary amput.
2 fractures of the shoulder:	2 ditto.		
2 fractures of the arm:	2 ditto.		
3 fractures of the elbow:	1 uncertain,	2 sec. amput.,	2 deaths.
8 fractures of the forearm:	8 well.		
25	16 cases of success.		

The difference of the mortality amongst the insurgents and soldiers had been as follows:—

Out of 17 fractures of thigh and leg:—

5 insurgents: 4 deaths, 1 recovery (fracture of the thigh).
12 soldiers: 4 deaths, 7 doing well, 1 amput. cured.

This considerable mortality amongst the insurgents depended, in some measure, of course, upon the moral depression consequent upon their defeat, but also upon the interrogations which those unfortunate men were submitted to, without the authorization of the surgeons to whose care they were confided.

These satisfactory results were due (said M. Malgaigne) to various causes, amongst which it was only fair to place the special treatment employed. He avoided, as much as possible, all scarifications and incisions, employed only the simplest dressings, and gave food to the patients as soon as any appetite was present. With regard to venesection, he scarcely ever employed it; being a pupil of Broussais, he formerly recommended the practice, but had been deterred from its use by the fatal effects he had witnessed. A document, which unfortunately had never been published, and which had been prepared by the orders of the administration of hospitals, was most peremptory in this respect. It was the statistical account of the mortality amongst the wounded admitted in 1814 into the hospitals of Paris. In these tables French, Prussian, Austrian, and Russian subjects had been entered, together with a statement of the mode of treatment. All except the Russians were submitted to a severe regimen. The mild cases amongst the latter received what was called a portion of food; others received the half portion, and this *half* allowance consisted of—

Bread, - - - - - - -	1 lb.
Meat, - - - - - - -	½ lb.
Vegetables, - - - - - -	¼ lb.
Wine, - - - - - - -	12 oz.
Brandy, - - - - - - -	12 oz.

These figures might naturally astonish the meeting; but the tables of mortality would still further surprise the Academy. The mortality was—

For French soldiers, - - - -	1 out of 7
— Prussian — - - - -	1 — 9
— Austrian — - - - -	1 — 11
— Russian — - - - -	1 — 27

These were eloquent ciphers: they had been sufficient to convert M. Malgaigne, who, it was true, did not allow brandy to his patients, but a reasonable amount of wine.—*Monthly Ret.*, Sept. 1848, from *Dr. M'Carthy's Report in Med. Times*, Aug. 19.

34. *Case of Resection of the Scapula.* By WM. FERGUSSON, Prof. of Surg. &c. (Proceedings of Roy. Med. & Chir. Soc., June 13.)—W. H——, aged thirty-three, was admitted into King's College Hospital, on January 13th, 1847 He had suffered from disease of the right shoulder-joint for seven years, when the extremity was amputated at the articulation, at Fort Pitt Hospital, and a part of the glenoid cavity was at the same time removed. He recovered, but became the subject of abscess on the front of the chest, about twelve months afterwards. On admission into King's College Hospital, the whole shoulder was enlarged, and the soft tissues hypertrophied; a great many fistulous openings existed in the pectoral region, and over the clavicle, which discharged copiously. Having determined on the propriety of removing the scapula entire, the author proceeded to operate on the 6th of February, 1847. The patient was put under the influence of ether, and the clavicle was first exposed, and divided about two inches from its acromial extremity with a saw; another incision extended along the spine of the scapula, and a third in the course of the old cicatrix. Some further dissection, and a division of the attaching muscles, enabled the operator to complete the excision, the subclavian artery being the while compressed over the first rib. The axillary and other arteries were tied, and the wound closed with stitches. The patient's recovery was satisfactory and unattended by anything deserving particular notice. On May 5th, he was sent into the country, and a recent account reports him to be well and fat, though still occasionally troubled with small abscesses on the breast. After maceration, the bone exhibited a hypertrophied condition; the remaining portion of the glenoid cavity was carious, and its margin was surrounded by a mass of new ossific matter. The author concluded with some observations on the interest attaching to the case, from the rarity and formidable character of the operation required for the relief of the disease, and its successful issue.—*Lond. Med. Gaz.*, June 1848.

35. *Excision of the Elbow-Joint and greater part of the Ulna.* By PROF. FERGUSSON. Reported by H. SMITH, Esq.—William C——, aged sixteen, was admitted into King's College Hospital, July 21st, 1847, with disease of the right arm, presenting the following appearances. There is a large unhealthy sore on the ulnar side of limb, extending from the joint of the elbow four or five inches down the arm; and by means of the probe it can be ascertained that there is extensive disease of the ulna; the arm itself is in a semiflexed position, all power of moving the joint being lost. The boy is in a wretched state of health: he has been attending at one or two hospitals in London, and he was discharged only a few days back from one, being told that nothing could be done for him.

Aug. 14th.—Mr. Fergusson has examined this case from time to time. Having made up his mind to remove the diseased bone, the patient was brought into the theatre, and being placed under the influence of ether, the operation was commenced. An incision six inches in length was carried over the ulna. The tissues being well cleared away, and the whole of the bone found in a diseased condition to within two inches of the lower extremity, the cutting pliers were used at that point, and the section was made. The upper part of the bone and the elbow-joint were then examined, and the articulating surfaces of the latter being affected, were removed, together with three-fourths of the ulna. The edges of the wound, which were very extensive, were then brought together by sutures; cold rags were applied, and the limb was kept in the semiflexed position.

17th.—This day the dressings were removed from the wound, which appears to be in a healthy condition. The patient has suffered considerable pain, but this has been relieved by the constant application of warm water.

24th.—The wound is looking very well, and the limb being in a good position for any future use of it, a bandage was ordered to be applied, and used daily.

From this time the case progressed favourably, but slowly. The patient being kept in the house for some weeks until the wound had healed considerably, and his health had somewhat bettered, he was discharged, to attend as an out-patient. The wound was some time in healing up, and his health, which had been much shattered, gradually improved. A most perfect and satisfactory cure took place, and I had an opportunity, a few weeks ago, of seeing the patient in good health, and having the most perfect use of his hand.—*Lancet*, Aug. 26, 1848.

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36. *Case of Dislocated Head of the Radius successfully reduced two years and one month after the Accident.* By James Stark, M. D. (*Edinburgh Med. and Surg. Journ.*, Jan. 1848.)—The subject of this case was a girl about nine years of age, in whom the dislocation was produced by a fall against a fender, the elbow of the right arm coming in contact with its edge. The case was treated by the family surgeon as a mere contusion.

As from the cases related by Flaubert, Marx, and Dupuytren, it appears that the chief danger in reducing old dislocations arose from the risk of rupturing the muscles, blood-vessels, or nerves, by employing violent efforts at reduction, it was determined in this case to extend the arm firmly, but gently, day by day, till the new adhesions of the head of the radius were so much lengthened, or the head so loosened from its new site, that, by the employment of not much additional force, the bone would at last be put into its proper place. The extension was effected by seizing the hand of the patient with the right hand, bending the elbow-joint so that the forearm formed a right angle with the arm, and applying the counter-extension by passing the left hand close above the elbow-joint, and thus fixing the humerus. The extension was then continued till slight uneasiness was complained of. This was repeated daily from the 12th of May till the 2d of June, 1847. By this time the head of the radius had become quite loosened, and could be pulled to the edge of the articular head of the humerus. On the 2d of June, therefore, Dr. S. made the extension and counter-extension himself, and when the head of the radius arrived at the edge of the articular surface of the humerus, allowed the ball of the thumb of the left hand to press against it; when bending the forearm on the arm, the bone quietly slipped into its place. The head of the radius was found to have a strong tendency to slip out of its place and return to its former situation in front of the elbow-joint, partly on account of the altered form of the condyle of the humerus, partly from the cavity of the joint being filled with an elastic fibrous deposit. The arm was, therefore, kept much bent, and the hand tied up across the chest, so that the tips of the fingers almost touched the opposite clavicle.

Slight tumefaction, increased heat, and redness, with uneasiness rather than distinct pain, followed. These were speedily relieved by an evaporating lotion, but no other treatment was required, and the child was allowed to take exercise as usual. After a few days, a bandage was applied round the joint, but gave such uneasiness that it was obliged to be removed. No application was therefore made to the joint itself. After the lapse of about a fortnight, slight motion was daily given to the elbow-joint, without, however, lowering the hand or extending the arm. In about three and a half weeks after the reduction, the forearm was lowered so as to form nearly a right angle with the arm, greater motion was daily allowed to the elbow-joint, and frictions were also employed to promote the absorption of the fibrinous deposit, which, from filling the joint, still prevented the close coaptation of the bones. By the 10th of July the motions of the elbow-joint were found on trial to be nearly as extensive as those of the sound arm. The forearm could be bent on the arm so as to allow of the hand being put to any part of the head; but when the arm was extended, the head of the radius threatened to rise and resume its abnormal situation. The arm was, therefore, so tied that it could not be extended further than a right angle.

By the 1st August, or two months after reduction, the head of the radius was found to have acquired such a degree of firmness in its proper sight, that all bandages were removed, and the arm was allowed to be free. From this day the hand and arm improved in strength, so that, by the middle of September, both the child and her parents acknowledged she had much more use of the hand than she had had from the day of the accident, two years and four months past.

37. *History of a Case of Dislocation of the Head of the Femur backwards; with some Observations on that Form of Dislocation.* By RICHARD QUAIN.—An opportunity having occurred to the author of making a dissection of the parts concerned in a recent case of dislocation of the femur, he availed himself of it and has embodied his observations in this communication to the Society. The subject of the injury, a man aged 60, was killed by a fall from a ladder, the cause of death being extensive fracture through the base of the skull. Considerable deformity being observed in the right lower limb, the author was induced to make a careful examination of the extremity, with a view to detect the nature of the injury it had sustained. It was apparently, but not really, much shortened; it was also inverted, and separated from the sound limb. The trochanter major was altered in its relation to the iliac spine, and the depression behind it was wanting; the head of the femur could be felt towards the back of the pelvis. The limb could be flexed, but not rotated outwards. On removing the gluteus maximus, the head of the dislocated bone was exposed below the pyriform muscle, and immediately behind the acetabulum. The pelvis had sustained a fracture, but the fragments were not altered in their relation to each other. The obturator externus, quadratus femoris, and some deep fibres of the gluteus medius, were torn through. The inner and lower part of the capsular ligament was separated from the neck of the femur, and the round ligament was torn from the depression on its head. The great sciatic nerve was stretched but not injured, as were also the obturator internus and gemelli muscles. The brim of the acetabulum was slightly fractured. After giving the above details, the author remarked that there are points of contrast between the present and other cases which have been recorded of a similar accident; and proceeded to quote the history of the dissection in a few instances of the form of dislocation in question. The first was a case from Sir A. Cooper's "Treatise on Dislocations;" the second, one reported by Dr. Scott in the third volume of the "Dublin Hospital Reports;" and a third, described by M. Billard, in the third volume of the "Archives Générales de Médecine." He then proceeded to comment on these cases, directing attention particularly to the following points:—1st, the condition of the structures immediately interested in the dislocation, and especially the exact position of the femur; 2dly, the characteristic signs of the displacement; and 3dly, the restoration of the bone to its natural position. The practical inferences drawn by the author from the foregoing observations may be summed up as follows:—1st. In the ordinary form of dislocation backwards, the femur does not reach the sciatic notch. 2d. The head of the bone is lodged immediately behind the acetabulum, over the base of the ischiatic spine, and opposite to a small part of the sciatic foramina. 3d. The injury would be correctly named the dislocation of the head of the femur backwards. 4th. During the extension made to reduce this dislocation, the thigh is most advantageously directed across the pelvis, so that it shall form a right angle, or nearly a right angle, with the abdomen. At the same time the limb is to be in a state of abduction; the femur will thus be drawn away from the pelvis, forwards and outwards. The knee is to be bent, the extending force being fixed above the joint.—*Lond. Med. Gaz.*, July 16th.

38. *Dislocation of the Head of the Femur on the Dorsum Ilii, in a Child three and a-half years old.* (*Prov. Med. and Surg. Journ.*, July 12, 1848.)—Mr. IMAGE communicated to the Suffolk Branch of the Prov. Med. and Surg. Ass., at its annual meeting in June, a case of dislocation of the head of the femur on the dorsum ilii, produced by injury, which is worthy of notice from the extreme rarity of such an accident at so early an age.

"William Colley, aged 3½ years, of Ixworth, Suffolk, was admitted into the Suffolk Hospital, May 6th, 1847, with dislocation of the head of the femur on the dorsum ilii. The accident had occurred twelve days prior to his admission.

"The accident appears to have been produced by his sister jumping upon his shoulders, from a step above that on which her brother was standing. When I first saw him, the left great toe was resting on the instep of the opposite foot, and the knee crossing over the lower third of the right femur. The limb was an inch and three quarters shorter than the right. He was a remarkably fine healthy child. Soon after his admission reduction was attempted for a considerable time, but unsuccessfully, as we were not able to fix the knee-strap sufficiently tight to bear the long-continued extension.

"May 7th. Having obtained a proper sized knee-strap, and having nauseated our little patient with tartar emetic, and put him into a hot bath, we again applied the pulleys, and after ten minutes succeeded in reducing the dislocation. The bone passed into its natural situation without the slightest jerk or sound. The limb now assumed exactly the same appearance as the other, the shortening being entirely removed. The thighs were kept tied together for a week, and on the 18th of May he walked out perfectly well."

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39. *Case of undescribed Congenital Malformation of the Shoulder-Joint, simulating Congenital Dislocation.* Dr. Bellingham, on examining a patient, noticed that his right shoulder and arm presented a very different appearance from the left; the muscles, particularly the deltoid, being atrophied, and the bulk of the arm being one-half that of the opposite limb, in which the muscles were largely developed. He could not raise the arm to a right angle with the body, but all the underhand motions were well performed, and he stated that he could carry heavy bodies in the hand. On being questioned, he said this had been the condition of the arm as long as he could remember; he had never received an injury in the part until two or three years since, when the clavicle on that side was fractured.

On examination, the shoulder-joint presented somewhat the appearance of a congenital dislocation; the acromion process was very prominent, the deltoid muscle scarcely developed, and the arm about half the size of the opposite limb; in every motion of the joint the scapula moved with the humerus, as if anchylosis had taken place; the arm could not be brought to a right angle with the body; when raised nearly to this point, there was a sudden check to its further elevation. The head of the humerus did not form any prominence in the axilla, nor was there a vacant space between the acromion process and the head of the humerus, and the elbow did not project from the side.

On a post-mortem examination, the supra-spinatus, the infra-spinatus, and the subscapularis muscles were found to be atrophied and converted into fatty matter, similar to what is seen in cases of very old unreduced dislocation, where the muscles had not for many years been called into action. Scarcely any traces of the deltoid muscle existed; the biceps was wasted, as were likewise the other muscles of the arm, but they were not altered in texture. The capsular ligament of the shoulder-joint was very thick, consisting of several layers, which were separated from one another by cellular tissue. At the under surface of this ligament, and apparently forming a part of it, a round very strong ligament passed from the scapula to the humerus, which became extremely tense when the arm was raised from the side, and rendered it impracticable to bring the arm above a right angle with the body, even when the muscles connected with the joint were removed. The head of the humerus was in contact with the glenoid cavity, and remained in contact with it after the muscles were cut away, and after the capsular ligament had been opened above. The scapula, clavicle and humerus were small, resembling those of a delicate female, rather than of a labouring man. There was no appearance of the clavicle upon that side having ever been fractured.

Dr Bellingham says the condition of the shoulder-joint now described, which there is every reason to believe was congenital, must constitute a very rare form of malformation, as he had met with no account of a dissection where such a condition of the parts was observed; and the most recent work upon injuries and diseases in the vicinity of joints, by Mr. Smith, contains no case resembling it.

The original malformation here, was undoubtedly in the capsular ligament of the shoulder-joint, the inferior portion of which was condensed, shortened, and converted into a kind of round ligament, which so limited the motions of the arm that it could not be raised above a right angle with the body;—the muscles employed in raising the arm were never, therefore, called into action, and their tissue had degenerated; in some, as the supra-spinatus, the infra-spinatus, and the subscapularis, the muscular tissue was converted into a matter resembling fat; while the fibres of the deltoid seemed never to have been developed, so completely was its muscular tissue absent.

The scapula, clavicle, and humerus upon this side, which resembled rather those of a delicate female than of a robust man, were exhibited to the members of the society, and are now in the Museum of the Royal College of Surgeons.—*Dub. Med. Press*, July 5th, 1848.

40. *Foreign Bodies in the Knee-Joint.*—M. Velpeau has lately delivered an extremely interesting clinical lecture on the above distressing and dangerous affection. So impressed is this distinguished surgeon with the hazardous nature of the curative means employed in such cases, that he quotes Benjamin Bell, "better amputate at once than attempt extraction, which is so often followed by death." The case brought forward in this instance forms, however, an exception to the rule, for complete success crowned M. Velpeau's efforts. The subject is a journeyman smith, twenty-four years of age, of strong make and good constitution; he had for some time experienced a little pain in the right knee, when one day, in rising from the kneeling posture, which he had assumed for the shoeing of a horse, he felt a sudden darting pain in the knee, and, in applying his hand to it, was for the first time made aware of the existence in that part of a foreign body of the size of a walnut. He had experienced no pain whatsoever immediately before, had by no means risen abruptly, never suffered from articular rheumatism, and had at the moment nothing the matter with him but blennorrhagia. Divers means were used before he was admitted at La Charité, when the part presented the following appearances: swelling, redness, and pain, with effusion in the joint; on the internal side of the inner condyle a movable foreign body is felt, of the figure and size of a horse-chestnut; it could be easily pushed under the ligamentum patellæ and brought out again; in the extension of the limb the foreign body lay by the inner and superior side of the internal condyle inflexion, it was hidden by the ligament of the patella. When the inflexion was brought down by appropriate means, the floating cartilage might be pressed and pushed without giving any pain. From this it is evident that the primary affection was the production of the foreign body, which had caused the subsequent inflexion by its irritating presence. As to the nature of the floating body, M. Velpeau mentions that he has seen two cases in which it consisted of fragments of detached cartilage, and thinks that, in general, they are mostly the result of resorption and induration after effusion *within* the synovial capsule, and not *without*, as Sir Astley Cooper and Béclard have thought; although there *may* be a plastic effusion on the external surface of the synovial membrane, which then gives rise to a foreign body, which remains attached to it by a longer or shorter peduncle. It is not easy to determine the origin of the cartilage in this case, neither has the operation thrown any light upon this. None but direct surgical means could be thought of, and extraction was the only one which offered any chance, although a full third of the patients thus treated have perished. So great is the danger, that surgeons have tried divers means in order to avoid the inflexion of the synovial membrane: thus has M. Dufresne, a Paris surgeon, proposed to reach the capsule by a subcutaneous incision, make a small opening in the synovial sac, gradually press out the cartilage, and leave it in the cellular tissue. This proceeding offers, however, no security against arthritis. M. Goyran, of Aix, operates in the same manner, but leaving an interval of a week between the capsular incision and the final elimination of the foreign body through the skin: M. Velpeau has succeeded twice in this manner. Boyer used to avoid making the cutaneous incision parallel to the capsular: this, however, was but a slight modification. It is very probable that, in this case, the cartilage was pediculated and intra-capsular, so that the operation must be extremely hazardous, as the knife *must* penetrate within the synovial sac. No inflexion whatever remaining in the knee, the extraction was practised in the following manner. Through a puncture in the skin, the capsule was entered with a lancet-blade fixed on a long and narrow-stem, the leg being extended on the thigh; an assistant then pressed the foreign body, to allow the surgeon to cut

through the peduncle and push out the free cartilage, but all efforts failed. A hook was then introduced along the stem of the instrument first used, and the foreign body being then drawn outwards by the hook, renewed endeavours were made to cut the peduncle; but this manœuvre succeeded as little as the first. The surgeon then decided on crushing the cartilage, and he effected this with the strong lance which had been first introduced, the foreign body being secured by the hook. After much tearing in every direction, the two instruments were withdrawn, and the trituration seemed complete; many of the fragments followed the hook, and lodged in the surrounding cellular tissue, but the peduncle had remained within the articulation along with some fragments: it might, however, be confidently hoped that both the latter and the former would, after so minute a division, be eventually absorbed. The cutaneous orifice was carefully closed with court plaster, and a firm compression between the capsule and the cellular tissue containing the fragments was effected, in order to isolate the former from a part of the articulation which might become the focus of suppuration. A few rounds of bandage being applied, the patient was carried to his bed, and the leg slightly flexed by means of a pillow placed under the knee. We have given such a length to this analysis, that we can merely add that one month and five days sufficed for the complete absorption of the foreign body and the perfect recovery of all the motions of the limb. Not the most minute examination could detect the least trace of the once so annoying cartilage; and M. Velpeau adds that this is the first time that he has thus modified M. Goyran's method by bruising the foreign body both within and without the capsule.—*Lancet*, Aug. 26, 1848.

41. *Rapid Recovery after Fracture of the Tibia.*—Dr. Schweich relates the case of a peasant, æt. 40, whose tibia was tranversely fractured at about its middle, producing obvious displacement. The case was treated by means of the starch bandage, and the reporter left off attending him on the sixth day. He was much surprised to hear afterwards that he had tried the experiment of walking in his room on the 12th day, and had gone to his employment on the 14th. On the 25th day he called upon the author, and exhibited a well-formed callus.—*Brit. and For. Med. Chirurg. Rev.*, July 1848, from *Casper's Wöchenschrift*, 1848, No. 7.

42. *Case of Obturator Hernia, with Symptoms of Intestinal Obstruction within the Abdomen, to relieve which the Abdomen was opened.* By John Hilton, F. R. S.—Miss ——, aged 36, in September, 1847, had some severe pain and local tenderness on pressure on the right side of the abdomen, above Poupart's ligament, with continued constipation and some vomiting. During several days these symptoms were relieved by the local application of leeches and fomentations, and the use of aperients and purgative injections. From that time she continued in her usual health until Jan. 20th, 1848, when she was suddenly seized with symptoms of strangulated hernia; but no hernia could be detected, although she was repeatedly examined in reference to that point. Various means were employed, without any permanent relief to the symptoms of strangulated intestine. These means were continued during eleven days, when in consultation with Dr. Fox and Mr. Blackmore, of old Street Road, in whose pratice this case occurred, it was resolved to recommend the patient to submit to an operation, the whole importance of which was fully explained to her. On the twelfth day from the first symptoms of strangulated intestine, Mr. Hilton opened the abdomen by cutting in the median line below the umbilicus, and ascertained the existence of an obturator hernia, which had not been at all suspected to exist. The intestine was withdrawn from the obturator opening by laying hold of it within the abdomen; no external tumour could be at that time detected in the upper part of the thigh. The operation was performed (with the patient under the influence of chloroform) in the morning, and the patient died in the evening of the same day. The post-mortem examination gave evidence of extensive recent peritonitis. The portion of intestine which had been in the hernial sac was distinctly seen, and on examination was found to have been in a condition favourable to recovery. The hernial sac remained fixed in the thigh; the parts surrounding it were dissected; and a drawing is annexed to the record of the case, showing the position of the hernia.—*Lond. Med. Gaz.*, July 16th.

43. *Report of a Case in which Gastrotomy was performed for the relief of Obstruction of the Bowels.* By R. Druitt, Esq.—J. D——, a delicate boy, aged eleven, had, at the end of February last, an attack of inflammation of the bowels, which yielded to the use of calomel, Dover's powder, and purgatives. On April 1st, the author was requested to see him for a similar attack, which resisted the treatment before adopted. Vomiting supervened, and the bowels were obstinately constipated. The belly was tense, but the chief pain and tenderness were referred to one spot—a little below and to the left of the umbilicus. The use of purgatives merely excited vomiting, and the rejected matter assumed a yellow, liquid character, and had a stercoraceous smell. The symptoms varied but little, the stomach rejecting almost everything but milk and soda-water until the 9th, when the patient appeared excessively exhausted. After this he rallied, but the bowels were unmoved; and, as every reasonable measure had been resorted to, without success, to procure their evacuation, as the tenderness continued fixed to the same spot, and as there was evidently a distended state of probably both the stomach and neighbouring portion of intestine, it was ultimately determined that an operation for relief of the supposed internal strangulation should be resorted to. On the 14th, the author accordingly opened the abdomen by an incision along the linea alba, below the umbilicus, and a distinct band was soon discovered, binding down the intestine. This was liberated; but almost simultaneously the bowel gave way at a point lower down, its contents escaping into the peritoneal cavity. This aperture was found and secured; but the patient survived only two hours and a half. On examining the abdomen after death, there were evident traces of former peritonitis, in the form of extensive adhesions. The whole of the large intestine, and a portion of the ileum, were pale, contracted, and empty. The remaining portion of the small intestine, up to the duodenum, was reddened, enormously distended, and filled with liquid feculent matter. The stomach was also greatly distended. The seat of stricture, where the band was divided, was marked and abrupt. The ulcerated opening was in the ileum, not far from the lower attachment of the band. The author considered that an earlier operation would have afforded a reasonable prospect of a successful issue.—*Ibid.*

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44. *Operation for Strangulated Hernia on the Plan of Mr. Gay.*—In our last number (p. 218) we noticed an operation performed by Mr. Childs for strangulated hernia, by a plan proposed by Mr. Gay. In the *Lancet* (Aug. 26th), the following case is reported by Dr. Catherwood, in which he operated successfully by the same method.

Miss M——, aged twenty-nine, had been subject to femoral rupture on the right side, for twelve years, but had not worn a truss, for whenever a protrusion took place, she was able, without difficulty, to return it.

Aug. 12th.—After some exertion, the rupture descended and she was unable to return it. I saw her in the afternoon and found it irreducible by taxis, although aided by bleeding, the application of ice, and a purgative enema. Vomiting supervened, and continued with scarcely any intermission during the whole night; and the lower part of the abdomen, especially on the right side of the linea alba, became tense and painful.

13th.—A little before eight o'clock in the morning, I again visited my patient, and found the symptoms so extremely urgent, that I immediately determined on operating, and adopted the plan recommended by Mr. Gay.

Mr. Gay saw my patient, and with his kind assistance, Mr. Burchell being also present, I began the operation, after chloroform had been exhibited, by making an incision, about an inch in length, between the tumour and the spine of the pubis, obliquely from above downwards, and from without inwards, the highest point of the incision being over the inner part of the femoral ring. After completely dividing the superficial fascia, the tip of the finger was readily passed to the angle between Gimbernat's ligament, and the neck of the hernial tumour, and a section of the edge of the ligament made with a concealed bistoury. A few fibres were now found to hold the tumour, which were divided by bringing the edge of the bistoury directly forwards. By making a very gentle pressure on the sound skin, the rupture immediately returned. The whole operation occupied but a very short space of time. Within ten minutes the bowels were moved, and their action continued at short intervals during the course of the night.

14th.—Slight pain in the right side of the chest; abdominal pain nearly gone. She wishes to get up. Ordered, half an ounce of castor-oil, to be taken directly, and when it has acted, twenty drops of laudanum every three hours, until the action of the bowels be restrained. Beef-tea.

15th.—Patient recovered; the slight wound healing fast.

Observations.—This mode of operating possesses such great advantages over the commonly-adopted method, that it only requires to be thoroughly known and understood, to receive the sanction of the profession.

1. The external incision is only just large enough to admit easily the fore finger.
2. Healthy structures are alone interfered with.
3. The wound heals by the first intention.
4. A truss may be worn three days after the operation.
5. The pain is inconsiderable, and the danger most materially lessened.

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45. *Case of Hydatid Disease of the Liver cured by Operation.* By GEORGE O. REES, M. D.—The patient was a man aged thirty-one years; admitted into Guy's Hospital on the 13th of October, 1847. Examination of his abdomen detected a distinct tumour occupying the right hypochondriac and epigastric regions. Fluctuation could be felt in it. On the 4th of December the tumour was tapped by Mr. Hilton, with a trocar and canula not larger than an ordinary exploring needle, straps of plaster having previously been passed round the body, so as to fix the tumour in position, and to exert pressure upwards. Thirty-eight ounces of clear fluid were removed. The wound quickly closed. On the 7th of January, the tapping was repeated with the same instrument, and with the same precautions as before. On this occasion pus of a very offensive odour escaped, and only ten ounces were obtained, owing to the canula becoming obstructed. On the 9th of January the tumour was tapped a third time with a full-sized trocar and canula, an elastic gum-tube being passed through the canula. Twenty four ounces of fetid pus escaped, with membranous flakes, and partially destroyed hydatids. The opening was maintained, and fetid pus, with occasionally hydatids, continued to be discharged (the capacity of the sac at the same time diminishing) till the commencement of April. On the 11th of April the discharging orifice had closed, and no remains of the tumour could be found, unless it were a body about the size of a walnut, below the right lobe of the liver. The author comments upon the diagnosis of the disease, the propriety of the operation, the degree of danger attending it, and the precautions adopted to avert evil results, and concludes with some remarks on the nature of the fluid discharged from the sac.—*Lond. Med. Gaz.*, July 16th.

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46. *A Plan of treating Ovarian Dropsy by the Ulcerative Opening of the Cyst, after its permanent adhesion to the Walls of the Abdomen.* By EDWARD J. TILT, M. D. (Proceedings of R. Med. and Chirurg. Soc., June 27.)—The author was led to attempt this mode of cure by observing the process of Nature in some spontaneous and radical cures of ovarian dropsy. His first object is, to establish solid adhesion between the peritoneal covering of the cyst and the peritoneal lining of the abdominal parietes. His second object is, to make the smallest possible opening into the cyst, so that it may not be suddenly emptied, but remain always full, and be only relieved *per stillicidium* of the overplus of liquid distending its cavity, while it gradually contracts. To attain both these objects, he adopts the plan which has often been successful in effecting the adhesion of hydatid cysts of the liver to the abdominal walls. It consists in the application of Vienna paste to the appropriate part of the abdomen. He relates one case in which a radical cure of an ovarian cyst was effected by this means.

A lady, who had always enjoyed good health, ceased menstruating at forty years of age. Soon afterwards, having been exposed to cold, she was seized with violent pain in the left iliac fossa, followed by shivering and high fever. When these symptoms were relieved, a tumour of the size of an orange was felt in the situation of the left ovary. This tumour gradually increased, and in a short space of time the patient had the appearance of being nine months gone with child.

Vienna paste was applied to the pit of the stomach; an eschar was produced, and fell off, and afterwards a small opening was formed by ulceration, through which an albuminous ropy fluid escaped. The abdomen was supported by moderate pressure. In a few weeks the discharge became purulent and offensive. Tepid water was then injected into the cyst daily for some months; the cyst gradually contracting, so that at length it would receive only an ounce of water. In about a year the patient was in effect well, although for several years a fistulous opening remained at the pit of the stomach. In the course of the case the cyst formed a communication with one of the intestines, and for several days the patient passed purulent stools, while, during that time, no pus escaped from the external wound. —*Lond. Med. Gaz.*, July 16th.

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47. *Femoral Aneurism—Ligature of External Iliac Artery—Cure.* By Robert Cocks, M. D. (*Edin. Med. & Surg. Journ.* April, 1848.)—The patient was a labourer in a gas works, 46 years of age, of sober habits and enjoying good health. When seen by Dr. C., on the 31st of October, 1847, he stated that two months previously he first felt a pain in his right ham, but that he observed, a fortnight before, for the first time, a pulsating tumour underneath his right groin, about the size of a hen's egg. On examination, Dr. C. found a circumscribed pulsating tumour in the course of the femoral artery, immediately before it entered the tendon of the *triceps* muscle, about the size of a large orange, and which separated, to a considerable extent, the *sartorius* and *rectus* from their natural position. On the surface of the tumour were three protuberances, each being about the size of a sixpenny piece, very elastic to the touch, and through which the pulsation was peculiarly marked, so distinctly, indeed, as to convey a painful impression. that at each successive pulsation the sac would give way, and its contents suddenly burst forth. With the exception of these spots, the tumour, when compressed by the hand, conveyed to the fingers a sensation as if it were a *doughy* substance; and a dull pulsation was felt all over it. By compressing the artery immediately above the tumour, so as to cut off the supply of blood from it, the pulsation at once ceased, and the tumour became flaccid and shrunk in appearance; but the moment the pressure was removed, it speedily resumed its former shape. Handling the tumour even rather roughly, appeared to give the patient no pain or uneasiness. The skin was nowhere discoloured, neither was there any œdema of the leg.

The contents of the visceral cavities appeared to be in a healthy state; his pulse was calm and natural, and his appetite good.

The operation was performed on the 4th of November, by making a longitudinal incision through the integuments and superficial fascia, of about four inches, in a direction nearly parallel with that of Poupart's ligament, and about an inch above it. This brought to view the tendon of the external oblique, which Dr. C. divided in like manner; a few fibres of the internal oblique and transversalis were cautiously raised and separated, exposing the *fascia transversalis.* A director being introduced, these muscles were freely divided to the extent of the external incision. The artery being still at a great depth, it was necessary to employ flexible copper retractors to separate the edges of the wound. The fascia was then gently separated, the *peritoneum* raised, and the finger introduced down to the vessel; a little counter pressure being made with the finger, the aneurism needle was cautiously insinuated under the artery, the convexity of the instrument being turned towards the peritoneum. Slight pressure on the needle, with the vessel interposed, completely prevented all pulsation in the aneurism. The ligature being firmly tied, both ends of the silk were left hanging out of the wound. The artery, at the point where the ligature was applied, appeared to be perfectly healthy.

The edges of the wound were approximated, retained by three stitches, and light water dressing applied. Little blood was lost during the operation; the only vessel divided was a branch of the *circumflexa ilii*, which was immediately secured by ligature. The limb was then wrapped in flannel, and the patient placed in bed. He complained of no pain or uneasiness, only of a chilly sensation in the right limb.

Nothing very remarkable occurred in the progress of the case. On the 20th of December, on applying a slight degree of force to the ligature, which still remained firmly adherent in the wound, the silk broke under the skin, leaving the knot deeply imbedded in the wound. At this period the aneurismal sac was reduced to half its former size.

March 1st, 1848. He appears quite well. No perceptible difference is apparent between the right limb and the left, and the sac has completely disappeared. On careful examination, a hard cord is alone distinguishable in the situation of the femoral artery.

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48. *Aneurism at the Bend of the Arm after Venesection—Pressure tried without success—Ligature—Cure.*—Mr. Orr communicated to the Surgical Society of Ireland (Feb. 19th, 1848), an interesting case of circumscribed false aneurism after venesection, occurring in a healthy man 27 years of age, admitted into the city of Dublin Hospital Aug. 21st, 1847. The compression was so exerted as not to arrest completely the flow of blood through the vessel; the points of pressure were varied from the axilla to immediately above the tumour; the patient at first bore its application for about six hours at a time, but gradually became intolerant of it, so that it could not be persevered in for more than two hours, and that he was kept in bed and allowed an unstimulating but nutritive diet.

At the end of about four weeks the tumour had considerably increased in size, and there was no evidence of any coagulation having taken place. The man, too, was becoming exceedingly impatient, and anxious that something more decisive should be done for him. Unwilling to have recourse to the knife, Mr. O. determined to try if he could more easily bear compression with the hand to such a degree as altogether to arrest the circulation in the vessel. It was evident that this mode of compression could not be kept up sufficiently long to effect a cure by merely diminishing the force of the circulation. As he had said previously when this mode of pressure was used for a short time while the position of the clamps were being changed, that he thought he could bear it better than anything else, I had some hopes that it might be continued sufficiently long, at least, to make a step towards the cure which might be afterwards followed up. Two of the pupils, Messrs. Meyler and Perceval, having kindly offered to assist, the trial was commenced, but at the end of two hours, during which not a drop of blood had been permitted to enter the aneurism, the patient declared he would sooner submit to amputation of the limb, and refused to permit a continuance of the trial.

In consultation, it was now suggested that, prior to performing any operation, it would be well to try the effect of a bandage and compress applied with moderate tightness, and to give internally the acetate of lead; with considerable difficulty, Mr. O. persuaded the patient to submit to this treatment for a week; but at the end of this period, as it was evident that there was no diminution of, or coagulation in, the sac, Mr. O. agreed to the patient's earnest request to tie the artery.

The operation was performed on the 27th of September.

An incision, about two inches and a half in length, was made over the course of the brachial artery, its lower end terminating just above the aneurism. After dividing the fascia and some cellular tissue, a small vessel, scarcely the size of a crow-quill and unaccompanied by veins, was exposed. Round this a ligature was placed and tightened, but as the pulsation, though checked for an instant, immediately returned in the sac, it was again loosened. By examining with the finger in the wound, another vessel was felt pulsating to the inner side of this, and laid bare by a little further dissection. Some difficulty was found in applying the ligature, in consequence of its being almost entirely concealed by a large vein. When this was effected, pulsation ceased for a moment in the aneurism, but almost immediately returned, and the case being now perfectly clear, the first vessel was also secured, on which it disappeared. Before the wound was dressed, however, the pulse could be felt at the wrist, and was also faintly perceptible in the tumour, which had considerably diminished in size.

No bad symptom subsequently occurred. The aneurism gradually decreased in size, and became much firmer; it ceased to dilate, and seemed to be only thrown forwards by the stroke of the artery. The pulse at the wrist was as strong as in the other arm; the ligature on the small vessel separated on the tenth, and the other on the seventeenth day, by which time the wound was healed, except at the point where the ligature was brought out; and the next day the patient went to the country.—*Dub. Med. Press*, March, 1848.

49. *An easy Means of rendering the Ulnar Artery accessible to the finger or even to the eye.* By M. MALGAIGNE.—"I have several times had occasion to place a ligature around the ulnar artery for lesions of this vessel; and when the cellular tissue is gorged with effused blood, and it is necessary to seek it at a considerable depth, I do not hesitate to term it a very difficult operation. Perhaps the means I am about to state will assist in removing the principal difficulty, which especially depends upon the depth of the artery.

"If the fingers and hand are turned forcibly backwards upon the dorsal aspect of the forearm, the relations of the ulnar artery become surprisingly changed. The deep-seated muscles upon which it lies are forcibly raised, and cause a sensible projection under the skin. The tendon of the flexor carpi ulnaris, on the contrary, retreats inwards and backwards; so that the artery, which, in the natural position of parts, is partly concealed by it, is now forced to a much more anterior plane, and lies four or five millimetres on the inner edge of the tendon. In many subjects it becomes more superficial than the radial, and it may be seen raising the skin at each pulsation.

"In traumatic lesions of the vessel, the same position brings the wounded extremity of the vessel towards the surface, and enables us to seize it; and in any case, when we wish to pass a ligature around the vessel, there will be no longer occasion to denude and draw away the tendon of the flexor."—*Brit. and For. Med. Chir. Rev.*, Sept. 1847, from *Revue Medico-Chirurgicale*, tom. ii. p. 160.

50. *Treatment of Varicose Ulcers and Varicose Veins*, (*Dublin Medical Press*, June 28.)—Dr. HARGRAVE recommends for the palliative relief of varicose ulcers and varicose veins, the application of the vulcanized India-rubber, as a bandage, in the form of a ring or garter, which is constantly to be worn, and he relates two cases in which he employed it with advantage.

"The simplicity and facility of application of this garter," he says, "can recommend its adoption in such cases. In these instances the great benefit derived from it was the support it gave to the veins, which, if overloaded on the distal side, it was merely necessary to stretch the garter, when the *veins were instantly seen to empty themselves.* For prolonged use, I think it will supersede the laced stocking and the roller, either of which, by the general compression of the limb, causes the wasting of the muscles and of the soft parts, as I have often witnessed in those individuals who have worn one or other of these bandages for a few years, and produces also a certain amount of debility. No such risk is incurred by this means of support, nor any danger to be apprehended by creasing or unequal pressure of the integuments causing fresh ulceration, if but ordinary attention is paid in wearing it.

"The patient is also saved from the inconvenience, which to some is of some amount, of the extreme heat of the leg caused by the laced stocking.

"I now use the elastic India-rubber web inch wide, into which is inserted a piece of the vulcanized kind, or it can be made solely of the last-named material. I would also suggest that it is better to make them into a ring garter than with a buckle and strap; the latter is too much under the control of the patient, who may become impatient of the pressure, and would consequently relax it; while if the ring garter is used, the only interference will be that of easing the pressure occasionally by stretching it."

51. *Case of Fungus Hæmatodes of the Testis, where Castration was performed; in which the Patient survived the Operation nearly Seven Years, and on examination presented no trace of Malignant Disease.*—Dr. BELLINGHAM communicated to the Surgical Society of Ireland the following extremely remarkable case:—Wm. Cummins, aged 58, a labouring man, resident a few miles from Dublin, was admitted, under my care, into St. Vincent's Hospital, in January 1839, for an enlargement of the left testis of two months' standing. He has a healthy florid look, and he states that he has always enjoyed good health; his habits are temperate. He first noticed the enlargement of the testis about two months since; his attention was attracted to

it by its size; he never had pain in it. and never received an injury in the part. He says he never had venereal in any form, and never took mercury; he is married, and the father of a family.

On examination, the left testis was found to be enlarged to about the size of a hen's egg; the integuments are unaltered in colour; the tumour is heavy; the epididymis much indurated; the spermatic cord healthy; he has no pain in the part, which is little sensible to the touch, and but slightly painful after being handled.

He remained in the hospital until the beginning of May, when he left, the tumour not having increased in size.

In January, 1840, he was readmitted; the tumour had increased in size, and he complained of a sensation of pain and dragging in the cord, and up to the ring; the tumour is smooth on its surface; the integuments are perfectly sound; it is heavy, painful after being handled, but not otherwise; in front it gives the feel of fluctuation posteriorly; the epididymis is much indurated; the spermatic cord is healthy; the patient's general health is good.

February 11, 1840, the testis was removed, and in a few weeks the wound was healed. On a section being made of the tumour, it presented the usual pulpy appearance of encephaloid disease; the cut surface was pale; the centre softened, and dotted with dark spots like extravasated blood. The epididymis was nearly as hard as cartilage. The layers of the tunica vaginalis were adherent, except at a few points, and here a small quantity of limpid fluid was collected.

The patient soon afterwards left the hospital, and remained well, with the exception of occasional attacks of bronchitis, to which he had been previously subject, until the month of May, 1847, when he was readmitted, labouring under a recent acute attack of double bronchitis, supervening on chronic bronchitis with emphysema, under which he sank a few days subsequently. On a post-mortem examination, the lungs presented the usual appearances seen in subjects dying of bronchitis with emphysema; all the other organs were perfectly healthy. The cicatrix in the scrotum was almost entirely obliterated.

Dr. Bellingham said he wished to place this case on the record of the proceedings of the Surgical Society, because there are few well-authenticated examples of fungus hæmatodes of the testis, where the patient survived the operation long, or where the disease did not reappear in some other part. Indeed writers are almost all agreed that operations for fungus hæmatodes are among the least successful in their eventual results of any that are performed, and fungus hæmatodes of the testis forms no exception to the rule. In the most recent work upon the subject (that by Mr. Curling) he says—"I scarcely know an instance of castration having been performed for this disease in which the patient has survived for any lengthened period. Sir B. Brodie states that he has known but one instance in which there was no recurrence of the disease. The patient was a French courier, and had the disease in one testis, which was amputated. Three or four years after the operation, Sir B. Brodie learned that he was going on favourably." In the case before us, nearly seven years elapsed between the period of the operation and the death of the patient, which was the result of another disease; and on examination all the internal organs were found to be free from disease.

Dr. Bellingham said, it may perhaps be objected that the disease in this instance was probably not genuine encephaloid disease, or it would have reappeared in some other part. Upon this point he would merely observe, that Mr. Cusack, who was kind enough to assist him in the operation, considered it so well marked an example of the disease, that he had a drawing made of the recent parts, which he (Dr. Bellingham) was enabled to exhibit on that evening to the members of the society.—*Dub. Med. Press,* July 5, 1848.

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52. *Scirrhous Lymphatic Gland.*—Mr. Bree detailed to the Suffolk Branch of the Prov. Med. and Surg. Ass., at its meeting in June last, a case of "scirrhous deposit," affecting primarily and solely the lymphatic gland of the right axilla, in a lady, aged sixty. The tumour was seen by Sir B. Brodie and Mr. Aston Key, and removed by the latter gentleman.

The physical character of the tumour previous and subsequent to the operation, and its microscopical examination afterwards, left not the slightest doubt as to the nature of the affection.

Mr. Bree remarked upon the extreme rarity of this form of carcinoma. Scarpa having denied its occurrence, and only one case being recorded by Dr. Walsh, in his excellent work, which was quoted from a Dublin journal.—*Prov. Med. and Surg. Journ.*, July 12, 1848.

53. *New mode of treating Deafness arising from destruction of the Membrana Tympani.*—Mr. YEARSLEY mentions (*Lancet*, July 1) a simple means of remedying the loss of the membrana tympani with which he became accidentally acquainted through the instrumentality of a patient. This consists in inserting a small portion of cotton-wool moistened, into the meatus, and passing it with a probe to the site of the missing tympanum. He relates two very astonishing instances of the improvement in hearing thus accomplished. The remedy is a simple one, and its usefulness or fallacy will doubtless soon be amply ascertained.—*Prov. Med. and Surg. Journal*, Aug. 9, 1848.

OPHTHALMOLOGY.

54. *Symptomatic Prominence of the Eyeball.*—Mr. PILCHER related to the Medical Society of London the following cases:

While in attendance upon Mr. P——, in December, 1846, my attention was directed to Master P——'s left eye, which certainly was more prominent than the other, yet without approach to strabismus. He is a very delicate boy, aged thirteen years and a half, of small stature, very largely-developed head, pale and thin, appetite fastidious and rather large; bowels generally torpid, as usual in persons of this diathesis, where the nutrition is by no means proportioned to the food received. He had closely applied to his studies during the previous year or two, especially to drawing, and that a good deal by candlelight. I could not detect any diminution in the power of vision; the pupil acted, though somewhat sluggishly, as well as the opposite. He expressed himself quite well in every particular. In consequence of these negative symptoms, I was inclined to believe that the projection of the eye was congenital; his digestion was imperfect. He took mercurial aperients, with regulated diet, and the prominence subsided in about a week. On April 17th, 1847, he returned from school, complaining of pain in the left eye and forehead. He had been over-fatigued during the last month or more, by walking twice daily to and from school, and had been also overworked at his lessons. He took an aperient, and was much better on the next day. On the ensuing day he became seriously ill, and necessarily confined to his bed; he vomited so constantly as to reject all medicine, and, indeed, food. Cramps in the arms and legs, and to a less degree over the body generally, were most painful; the left eye projected much beyond the other. I saw him in consultation on Tuesday evening, and found—as far as my recollection will serve me—these conditions:—The surface of the body rather cold; the fingers and hands spasmodically flexed, the forearm less so; imperfect volition in the shoulders; the lower extremities affected in the same manner, but to a less extent; vomiting very constantly whenever food or medicine was taken, and that attended with painful cramps or spasms of the upper part of the abdominal muscles, and, probably, of the diaphragm; bowels had not been relieved for twenty-four hours or more; urine natural; pulse slow, full, and perhaps a little labouring, about 40; respiration corresponding; intellect quite correct and clear; the left eye considerably projecting beyond the orbit, and very noticeable in contrast with the other; the upper lid depressed; great intolerance of light; pain in the forehead and eye, and generally on that side of the head. It is difficult to say whether the globe of the left eye was not larger than the right, or whether that appearance was entirely dependent upon its prominence; the axis of the eye was correct; the transparent media were quite clear; no increased vascularity; he could detect not only light from dark, but large objects that intervened between the light and his eye, but could not distinguish what they were. The treatment consisted in allaying the irritability of the stomach by a counter-irritant over its region, effervescing salines in small quantity, and I think, hydrocyanic acid; afterwards mercurial purgatives and blisters to the left temple. On Thursday, the second day after my first visit, the sickness was relieved; he had passed two or three dark evacuations, and he was a little improved in every particular; but the affection of the eye and head was nearly the same. I saw him every other day for about a fortnight, during which time he gradually improved, with occasional interruptions. The treatment essentially consisted of mercury, in the form of mercury and chalk, two, three, or four times a day; counter-irritation, by means of blisters to the affected side; aperients of rhubarb, castor-oil, &c., which were frequently required. In the progress of the case, the appetite, which at first was entirely lost, became so considerable that it was requisite to limit the quantity of the food. The first symptom that subsided was the irritable condition of the stomach and bowels, then the spasmodic affection of the limbs: the pain of the head improved, and gradually the eye became less prominent, less painful, and the function amended, but was not quite restored; as the other symptoms subsided, the pulse rose to its natural standard. The little patient was confined to his bed-room for six weeks, and to the house for two months, during which period he continued to take the mild form of mercury, which did not affect the gums, nor in any way inconvenience him. His eye slowly and gradually improved until he went into the country, which he did somewhat earlier than perhaps was quite prudent.

This young gentleman experienced a third attack in September last, upon which occasion I did not see him, as the affection soon passed off. The left eye then also projected, and the sight was deteriorated. He was at this time labouring under influenza and enlargement of the cervical glands, which required medicines and confinement to the house, and under this regimen the disorder of the eye subsided. It is interesting to notice that he had again returned to his studies, and to exposure, though not to the same extent as formerly. His general health is now quite good; a dimness of vision still exists in the left eye, unappreciable to himself upon ordinary occasions, but evident when experimenting with the right eye closed. It may be an important circumstance in deciding the pathology of this case, that an artist, in taking the portrait of this boy many weeks before his first illness, observed, and expressed in his painting, a peculiar stare or unnatural expression of the left eye, to which the attention of his parents and friends had not been previously directed.

I suppose it will be at once conceded, that the affections of the digestive, respiratory, and circulatory organs, were secondary to, and consequent upon, that of the brain; and whatever it may be imagined was the condition of the central nervous system, it will perhaps be as readily allowed that it was sympathetic of that of the eye or orbit; it therefore remains to be decided whether the affection originated in the globe of the eye, which, enlarging, projected forwards in the only yielding direction; or in the other tissues contained in the orbit, the tumefaction of or deposit in which protruded the eye.

Master F. C——, aged about four years, having had scarlet fever, which passed off mildly, was soon afterwards attacked with measles, which was unusually severe. This was followed by erysipelas on the face and head; two days after which he had severe pain in the left orbit, forehead, temple, and head generally; the left eye protruded greatly beyond the orbit; the lids were closed and stretched over the globe; the pain produced by examination was successive; general fever very high, with delirium. I saw him, with Mr. Chaldecott, on the 16th of April, 1845, the day following the accession of these symptoms. The conjunctiva was very florid and injected; the cornea dull, approaching to opacity, and resembling in appearance the dead eye when squeezed. He could most probably distinguish light from darkness; but we could not ascertain that he retained the function of sight, though the pupil acted sluggishly. Mercury and chalk, in small and frequently-repeated doses, was administered with aperients, as required, and evaporating lotions to the head, eye, &c. The bowels were soon affected by the medicine, and the mouth also in four days, when the prominence of the eye diminished, with a corresponding lessening of the other symptoms. The bowels were so far influenced as to produce some little alarm. The mercury was continued, in modified doses, from the 16th to the 25th of April, when he took some mild tonics; and eventually he completely recovered. A peculiar expression continued for some few weeks; but Mr. Chaldecott reports that three months after the attack the patient was quite well in every respect, the function and natural appearance of the eye having been perfectly restored. He regarded the pathology of the case to be effusion of serum in the cellular tissue of the orbit behind the globe, which it pushed forwards; and that the necessary pressure produced semi-opacity, or approach to a nebulous appearance.—*Lond. Med. Gazette*, June, 1848.

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55. *Ophthalmia Neonatorum.*—Mr. Wilde, in his extremely interesting "*Report on the Progress of Ophthalmic Surgery,*" in the number of *The Dublin Quarterly Journal* for May last, remarks, "In this disease it is said that a new membrane is generated upon the surface of the conjunctiva, in the same manner that adventitious membranes are thrown out on the lining of the larynx, and upon that of the pharynx and isthmus faucium in diphtherite; and this, it is said, is what causes the rapid destruction of the cornea in these cases. The existence of this membrane is yet problematical. The conjunctiva is not prone to effuse lymph upon its external surface, but probably, under certain circumstances, it may do so. A case has lately been recorded by M. Bouyson, in which, during an attack of very severe purulent ophthalmia, a series of pseudo-membranes were formed upon the chemosed conjunctiva, which protruded between the lids; but in this instance the conjunctiva had been previously incised to relieve the distension, and we are not quite sure that the effused membrane was not poured out from the cut surface of the mucous membrane. The lining of the mouth occasionally pours out lymph in large quantities, so does the external surface of the membrana tympani and the distal extremity of the external auditory passage, and it is possible that the mucous membrane of the eye may do so likewise; but the matter requires further investigation. M. Chassaignac, the discoverer of this pseudo-membrane (so called) in purulent ophthalmia, recommends the continual irrigation of the eye, by what he terms *Ocular Douches*, in order to wash away the membrane as often as it is produced. To effect this the child is laid upon a table, while a small stream of water* is made to play on the eyes, for several minutes together, frequently during the day. This mode of treatment is not so novel as the French surgeon believes. In the Dublin Lying-in Hospital, many years ago, the nurses of certain wards became so famed for their good management of purulent ophthalmia, that whenever a severe case of this description occurred in the institution it was immediately transferred to their care. The management consisted in the continual removal of the discharge, and the frequent cleansing of the lids by means of a fine sponge and lukewarm water. The plan pursued was to lay the child across the knees, and to let the water pour out from the sponge over the eyes, the lids of which were held gently apart.† M. Chassaignac likewise informs us that these douches have been found highly efficacious in the removal of corneal opacities which had resisted the ordinary methods of treatment. The projection of a stream of water of different temperatures against the eye, both as a means of cleansing it from impure discharges, and as a most grateful method of relieving pain and irritation, has been employed in the Ophthalmic Clinique in Vienna since the days of Beer. We have lately established douches of this description in St. Mark's Hospital, and as we think they will be found highly efficacious in similar establishments elsewhere, and should be employed in every hospital where diseases of the eye are treated, we give the accompanying description. Moreover, by this means the possibility of conveying infectious matter from one patient to another, by means of sponges, &c., will be in a great measure avoided. A zinc or tin cistern, capable of holding from three to four gallons of water, is fastened to the wall of the ward or waiting-room. It is open at the top, to allow of its being filled, but closed by a well-adapted lid, in order to exclude all impurities. A funnel-shaped zinc tube, furnished with a fine strainer, is attached to its bottom. This ends in a pipe of quarter inch bore, which is also fastened against the wall, and bent into a curve. This is furnished with a stopcock, and its extremity is so constructed as to permit of several descriptions of tubes and roses being attached to it. This curve is about three feet and a half

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* Revue Médico-Chirurgicale, September, 1847.

† See Dr. Evory Kennedy's paper upon the Purulent Ophthalmia of Infants, read at the meeting of the British Association in Dublin, in 1835.

from the ground, so that a person of middle stature may be within reach of the jet of water when stooping his head over it. Below is a zinc basin furnished with an ordinary plug and waste-pipe, into which the water falls, and which may be also used as the usual washing basin of a ward. The cistern can be filled with either hot or cold water as the occasion requires, and in large establishments it may be connected with the ordinary forcing apparatus. The strength of the stream or jet can be regulated by the stop-cock."

56. *Scrofulous Ophthalmia.*—The irritability of the Schneiderian membrane in this disease, and the sneezing and other phenomena which it so frequently presents, are well known to every practical surgeon, yet, until lately, the actual condition of the mucous membrane lining the nose has not received much attention. M. MORAND has lately directed particular notice to this circumstance. He says: "In scrofulous ophthalmia the olfactory membrane participates with the conjunctiva in the inflammation that is set up; that it is especially about the turbinate bones, and in the anfractuosities of the nasal fossæ, that the inflammatory action resides; and that this shows itself in the form of an œdematous engorgement, precisely similar to what is observed in the eyelids. The more I study this disease, the more convinced am I that this is the case. A little attention suffices to show that the redness and tumefactions of the pituitary membrane almost always precede or accompany that of the conjunctiva. This can be more positively determined by means of the speculum auris. On examining attentively the interior of the nasal fossæ, one cannot fail to observe that the redness and swelling of the nostrils, and even of the upper part of the lip, that are so commonly observed in persons of a scrofulous habit, are merely an evidence of the inflammatory action going on in that membrane. It is by proceeding in this way that we can best appreciate the degree and extent of this inflammatory action, the extension of which to the palpebral and ocular mucous surfaces is often very rapid; sometimes, however, it remains for a long time stationary, without showing any disposition to extend." For the relief of this disease M. Morand applies the nitrate of silver, either in substance, solution, or ointment, extensively over the surface of the pituitary membrane. The value of this remedy has been extensively attested by Dr. Edwards of Bath, and, according to his experience, with the most decided benefit, even in cases of long standing, and where other remedies had failed.—*Wilde's Report on the Progress of Ophthalmic Surg.*, in *Dublin Quart. Journ.*, May, 1848.

57. *Anæsthesia in Ophthalmic Practice.* By W. R. WILDE, Surgeon to St. Mark's Hospital.—We have, on more than one occasion, both with reference to *ether* and *chloroform*, stated our opinion upon the value of this practice in ophthalmic surgery, and we have given both agents a sufficient trial. In painful or prolonged operations, the removal of an eyeball, the extirpation of tumours, plastic operations on the lids, ectropion and entropion, we have used them with the usual efficacy in such cases. We have not, however, employed chloroform (and ether is more objectionable) in operations on the globe, because it is unnecessary, might in some cases prove injurious, and in several it is inapplicable. In most operations on the globe, a certain amount of volition is necessary on the part of the patient; for instance, in strabismus, after the muscle has been fairly divided, and to all appearance cleanly dissected off the sclerotic, it is possible that some small fibre, particularly at the upper edge of its insertion, may still remain (as indeed we know it often does), and prevent the ultimate perfect success of the operation. Now to assure himself upon this subject, the operator should, as soon as he thinks the muscle has been fairly divided, and all the immediate cause of squinting removed, direct the patient to turn the eye inwards, in order to judge of the result of the operation. If the ability of squinting remains, something further must be done, either by searching for some undivided fibre of the muscle, or applying a ligature, &c., as we directed some years ago. But how are we to judge of this if the patient is unconscious? We do not think the operations for extraction, artificial pupil, reclination, or breaking up of a lens, are at all so painful as to require the employment of an agent to render the subject of them insensible. In extraction we should certainly fear to use it; we generally make the upper section, and the

cornea is usually turned upwards during the use of chloroform; moreover, in this case it is also necessary that the patient should retain such consciousness as will enable him to turn the eye in the different directions required. Suppose, however, we complete the operation with success during the state of insensibility, and that a slight convulsion, a spasm, or a nervous excitability, seizes the patient upon awaking from the state of unconsciousness, prolapsus of the iris, loss of the vitreous humour, and perhaps complete collapse of the eye, may take place in an instant during this struggle, or the patient may, inadvertently, to use popular phraseology, rub his eye out. There may be, however, cases in which a state of insensibility may be beneficial during the performance of such delicate operations.

Dr. Mackenzie recommends the employment of ether (and, we presume, of chloroform on the same principle), in the treatment of various forms of ophthalmia, particularly where there is much photophobia. In the cases where these means were employed, the immediate relief to the distressing intolerance of light was very manifest; but it does not appear to have produced any material alteration in the progress of the disease.* Dr. Smith of Cheltenham has also written on the same subject;† and says that he has employed this means largely to enable him to examine and manipulate on the eyes of young children affected with strumous ulcerations, &c. Dr. Smith very justly remarks, that the state of insensibility is much more easily produced in young children than in adults. We have not, however, experienced such difficulty in the examination of ophthalmic cases, or the application of remedies, as to require the use of the means recommended by this writer.—*Ibid.*

58. *Corneitis.*—We were somewhat surprised when we read an article a couple of years ago in the *Edinburgh Medical and Surgical Journal*, in which the inflammatory diseases of the cornea were described by the author as if they were unknown to the profession; and our attention is again directed to the subject by a lengthened review of DESMARRES' book, which has recently appeared in Dr. Ranking's Abstract, in which the writer states that the French oculist's description of punctiform corneitis is so novel that it has been given in a condensed form in the extracts published in that work. Desmarres enumerates a superficial and deep-seated form of this disease, but it is unnecessary to enter at any length into his descriptions. The disease consists in inflammation and consequent thickening and opacity of the membrane of aqueous humour lining the back of the cornea, and extending to the membrane of Descemet, in which the inner surface of the cornea presents a speckled or dotted opacity, as if sprinkled over with a fine bluish-white powder, and which is most easily recognized by examining the cornea in profile, by which means we assure ourselves that the laminated, external elastic, and conjunctival layers of the cornea are not affected. This disease more frequently spreads to the substance of the cornea than to the iris. It is a form of inflammation well known to those who treat diseases of the eye upon a large scale, and has been frequently described by English authors. Mr. Tyrrell has described it under the name of aquo-capsulitis; and to his description, as it happens to be that which is now nearest to our hand, we would refer the reader of the work to which we have just alluded.—*Ibid.*

59. *Ulcers of the Cornea.*—In penetrating ulcers of the centre of the cornea, with prolapsus of the iris, we are told by M. DESMARRES that we should not despair of the reduction of the iris unless gangrene of that part has set in. Now what gangrene of a portion of protruded iris may be, we confess we are ignorant. While the term hernia is not inaptly applied to this peculiar state of the parts, the surgeon must not suppose that all the changes which take place in a portion of strangulated intestine occur in the iris. When a portion of the iris has protruded through the cornea, either from a wound or ulceration, and become there adherent, the protruding portion of it is not got rid of by gangrene, and it frequently requires to be removed by excision after days and weeks of irritation. For prolapsed iris Desmarres recommends the patient to be kept in a recumbent position, with the

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* Medical Gazette, June, 1847.

† Idem, October 15, 1847.

head low, and iced infusion of belladonna and hyoscyamus to be applied with light compresses to the eye, and a drop of the same liquid distilled between the eyelids every five minutes. We strongly object to this opening of the eyelids every five minutes, as we conceive nothing more likely to increase the protrusion than this very proceeding. We must here again refer to our observations upon the use of atropine, published in the fourth number of this Journal for 1846. We still believe that the best thing which can be done in penetrating ulcers of the centre of the cornea is to touch the rupture with a weak solution of nitrate of silver applied with a fine camel-hair pencil (but if the iris has protruded, it is better to omit this); then to drop into the eye a strong aqueous solution of atropine; to close the lids carefully with a strip of isinglass plaster extending from the forehead to the cheek; to apply the extract of belladonna plentifully in the usual manner all round the external parts; to lessen congestion and inflammation by local depletion, such as cupping or leeching, &c., and to relieve whatever other urgent symptom may present; to confine the patient to bed or the recumbent posture; to enjoin extreme rest, and not to meddle with the eye for forty-eight hours at least. There is a gentleman of our acquaintance who suffered from violent ophthalmia many years ago. His left cornea is quite irregular upon its external surface, and is apparently thinned from previous ulceration. He has had several attacks of sclerotic inflammation, with slight superficial ulceration of the cornea, in both eyes. Upon each occasion the left cornea gave way during a fit of sneezing, coughing, or some similar sudden exertion. The aperture was not like that formed by a penetrating ulcer, but was a rent or tear upwards of a line in length, extending across the transverse diameter of the cornea. On two of the occasions the iris protruded, and once a portion of it had prolapsed for several hours before I saw it: yet by the treatment above described, he recovered perfectly, with a slight brown mark left by the pigment of the iris upon the back of the cornea.

The transparent ulcer of the cornea has been long known and described; in some instances, however, we are unable to detect it when we examine the cornea in front, and only become aware of its existence by observing it in profile, or making the patient roll the eye about. There is, however, a symptom attending this form of ulcer with which we have been long acquainted, and which has not, that we are aware of, been heretofore described; it is the dark shadow thrown upon the surface of the iris by this ulcer, be it ever so transparent or so small, particularly when the patient stands opposite the light. At first view, this shadow, which is generally a dark circular spot through which the natural colour and striæ of the iris can be seen, appears like an ordinary congenital mark, but from this it can be distinguished by turning the head or eye from side to side, when it will be seen to shift its place on the surface of the membrane.—*Ibid.*

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60. *Cure of Cataract by Suction.*—Notwithstanding the established opinions with regard to the most approved methods for removing or displacing the lens, and the recorded experience of the most scientific and practical ophthalmic surgeons upon the subject, we yearly read of new methods of operating, as well as other means, in the shape of medicinal agents, extolled for the removal of cataracts. When we find practitioners subjecting patients with established cataracts to a course of treatment both local and general, we are greatly inclined—to use no harsher term—to question their experience, and when we find men proposing new methods of operating, such as cutting out a cataract through the sclerotic, and advising depression or breaking up indiscriminately, in preference to extraction through the cornea, we are very much inclined to doubt their capability of performing that dexterous operation. M. BLANCHET has lately promulgated a new method of operating upon soft cataracts, which he denominates the operation of suction (*par suspiration*). The pupil having been dilated with belladonna, he punctures the cornea with a large cataract needle toward its circumference, in order that the opacity which follows may not occur in the field of vision. Through this opening he introduces a small tube with a flageolet-like mouth, attached to an Anell's syringe, with which he pierces the capsule of the lens, and if the cataract is soft, he pumps it out through this tube by working the piston of the syringe; but if, on the contrary, the lens is hard, or the capsule dense and opaque, he then has recourse to

depression!* Such is the statement which has been vaunted in all the foreign journals as a discovery in ophthalmic surgery, but which must raise a smile on the face of every well-educated or experienced practitioner. In the first place, any thickening or opacity of the capsule should be discovered before an operation is commenced; and although the actual amount of softening—whether the lens is absolutely fluid, or is of its natural consistence as in a young healthy person, or as soft as ordinary starch made for washing—cannot always be determined upon before the introduction of a needle, still it can in most cases be decided with tolerable accuracy beforehand. If the lens be fluid, to attempt this suction is a most unjustifiable, as well as most unnecessary procedure; for the simple introduction of a needle through the cornea, and the laceration of the capsule, will allow the fluid to become diffused with the aqueous humour, in which case it will sometimes be absorbed in the space of a few hours. Every operator of experience well knows, that, even in those cases of fluid cataract, it is necessary to lacerate both the anterior and posterior capsules freely. If this is not done they will, though not previously opaque, become so very shortly; and while the substance of the lens is absorbed, both capsules will adhere, and become remarkably opaque, often remaining in such cases like a piece of egg-shell, held behind the pupil by a very thin semi-transparent membrane. And as these will not absorb, and can with great difficulty be depressed, it is frequently necessary to remove them through an incision of the cornea. Now the very wound made by M. Blanchet's suction pump is just the thing to produce this opacity; moreover, there must be a greater violence and injury done to the eye by this complicated process, than even by the roughest attempts at breaking up, whether through the cornea or sclerotic. In a case of congenital cataract in a young woman aged 18, upon whom we operated last year, and of which an account will be shortly published, this peculiar phenomenon occurred. Upon drawing the cutting edge of the needle across the anterior capsule, its fluid contents immediately burst out, and mixed with the aqueous humour, rendering the latter the colour of skimmed milk, and completely obscuring the iris. Having placed a bandage upon the right eye, we then proceeded to operate upon the left, when the same phenomenon occurred. In the space of about four or five minutes we removed the bandage from the eye first operated upon, when lo! the entire opacity had disappeared, except a few specks which remained on the torn capsule, and nothing was to be seen in the anterior chamber but a few grains of a white powdery substance at the junction of the iris and cornea beneath; and then upon looking at the other eye, the same clearness was found to have taken place there also, and imperfect vision (for the patient had never seen before) was found to be established. Now we can only account for this rapid removal of the milky state of the aqueous humour, by supposing that the heavier particles which formed it subsided, and, falling through the dilated pupil (for the patient was in the recumbent position), had deposited behind the iris, as a mixture of flour and water will do, if allowed to remain undisturbed: or that some chemical action had occurred between the salts of the aqueous humour and the opaque particles of the cataract.—*Ibid.*

MIDWIFERY.

61. *Dropsy in Pregnancy.*—The Nos. *Archives Générales de Médecine* for Feb. and March 1848, contain an elaborate article on this subject, by Drs. Devillier and Regnauld. They consider a deficiency of albumen in the blood during pregnancy to be the chief predisposing cause of dropsical effusion. They state, as the result of twenty-five analyses of the blood, that, instead of the normal proportion of 70 parts of albumen in 1000 of the blood, there existed but 68.60 parts during the first seven months of gestation, and only 66.4 parts in the last two months: thus, that there is a difference of 4 parts in 1000 between the blood of an unimpregnated and of a pregnant woman, without any loss of albumen by the urine. The experimenters

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* Revue Médicale, for August, 1847; and Journal des Connaissances Médico-Chirurgicales, p. 109.

therefore concur in the opinions of MM. Becquerel and Rodier, and in the general proposition of M. Andral, that a deficiency of albumen is the only constant change in the blood necessarily associated with dropsy. The following principles are laid down:—1. That the proportion of albumen is notably lessened during pregnancy; 2, that the decrease which this material undergoes is gradual; 3, that the minimum exists during the last months of gestation.

The cause apparently most active in producing the dropsy is the impediment to the circulation resulting from the pressure of the enlarged uterus; and hence effusion first shows itself in the ankles and legs. That such pressure is not, however, the sole cause of œdema, is shown by the fact, that a direct relation between the size of the uterus and the amount of effusion is frequently unobserved. As proof of accidental circumstances, such as prolonged standing or sitting, or continued pressure on the abdomen, as impeding the circulation and of causing œdema, may be derived from the relative frequency of dropsical effusion in persons of easy and luxurious habits, as compared with the same individuals obliged to labour hard; the former are incomparably the more liable, even under identical conditions of the uterus. It follows, therefore, that the dropsy is due to other causes than those acting merely mechanically, and interfering with the return of blood; although the influence of the latter is shown by the variations the dropsy will undergo by changes of position of the body, and of the form and inclination of the uterus. The effusion makes its appearance, in nearly one half of the cases, between the seventh and the end of the ninth month of pregnancy; but it often shows itself from the fourth to the sixth month; and we are sometimes surprised to see its existence as early as the third month. In these latter cases it has, however, been observed, that the vessels have been greatly developed, and more particularly the veins, and that the evident difficulty in the circulation produced, at this period, the appearance of varicose swellings and serous infiltration. The œdema may pursue an acute or a chronic march; developing itself in one or two weeks, when gestation is far advanced, or gradually manifesting itself during the last three or four months; a difference depending on general and local conditions of the organism and the state of health. It has been said that the disappearance of the dropsy frequently coincided with the development of puerperal disease, and that puerperal fever was the result of a metastasis of the dropsy. But M. Devillier comes to the conclusion that the dropsy may pursue its course, whether retrograde or progressive, notwithstanding the manifestation of puerperal disease; and that puerperal maladies do not, either in their production or in their effects, present anything which can explain the transport of effusion into serous or visceral cavities. Thus, it is impossible to attribute, with M. Vasseux, to the metastasis of œdema, those grave accidents such as cerebral compression or pulmonary œdema, which so often end in the death of parturient women. In the way of treatment, rest in the horizontal posture, the avoidance of fatigue and constipation, with diuretics, are recommended in the slighter cases. In more severe forms of dropsy, and where plethora exists, bleeding; the employment of baths, vapour and hot, and of frictions; and if there be chlorosis, ferruginous tonics are suitable.

62. *On Phlebitis of the Brain and Meninges in Puerperal Women.* By Dr. F. M. Ducrest. (*Archives Générales*, Nov. 1847.)—According to the author, this affection in puerperal women is of rare occurrence, only five instances of it having occurred among 259 cases in which the head was examined after death. In one of these instances, the affection was not accompanied by any other cerebral disease; in the others, it occurred in combination with cerebral or meningeal inflammation.

The first case was a woman, æt. 19, presenting the appearance and physical signs of phthisis, who was delivered of a male infant at the eighth month, and afterwards became affected with frequent pulse, and a peculiar tremulous motion of the eyelids, lips and tongue. At first, there was no other symptom; but on the seventh day after delivery, there was an increase of the affection, with delirium, headache, and some convulsive movements of the limbs. On the ninth day the pulse and respiration were accelerated, jaws locked, tongue dry, articulation imperfect, but intelligence apparently unaffected. There was great feebleness of all the limbs, and nearly complete paralysis on the left side. In a few hours the pulse fell to sixty, the respiration became slow and laboured; soon after she died. On dissection, the meninges were perfectly healthy; the cerebral hemispheres also healthy: but on section of the right side of the pons varolii, and the cerebral and cerebellar peduncles of the same side, the vessels in the interior of these parts were found distended to the size of a large pin by firm, dark clots, which, when extricated, appeared as dark brown cylinders of above a centimetre (nearly half an inch) in length. Around these, the cerebral substance was of natural colour and consistence. The lungs were extensively tuberculated, and contained numerous caverns. On the right side of the uterus was found a quantity of pus, surrounded by a slate-coloured induration of the substance of the organ, two millimetres (one line) in thickness.

The second case was that of a woman, æt. 25, who was delivered naturally, but soon after was seized with pains of the hypogastrium and limbs. These were followed by shiverings, fetid diarrhœa, and colic pains. The milk was suppressed; and leech-bites on the abdomen suppurated. On the ninth day, the pains being mitigated, she had severe cough, with crepitant rale at the posterior and lateral parts of the right lung. From the fourteenth to the seventeenth day, the right buttock swelled, and became the seat of lancinating pain; a large quantity of pus, with fetid gases and sloughs of cellular tissue, were evacuated by incision. In the meantime there had been watchfulness and delirium, with gradually increasing loss of intelligence, and moderate cephalalgia. She died on the twenty-seventh day. The pulse varied between 108 and 140, and the respiration between 28 and 48. On dissection, there was considerable subarachnoid effusion; the veins of the pia mater, on the convexity of the right hemisphere, were filled with firm, friable adherent clots, of a whitish colour, extending in some places into the cortical substance, and being darker in colour there and in the anfractuosities. The cortical substance was somewhat softened, and of a reddish colour; white cerebral substance not altered. The lungs contained some tubercles, and the lower lobe of the right lung was the seat of lobular pneumonia; several of the vessels were filled with partially-softened clots. The venous sinuses and lymphatics of the uterus were filled with pus; the broad ligaments were also infiltrated with pus. The cellular tissue between the sacrum and the left great trochanter was gangrenous, and full of pus.

The third case presented successively hypogastric pain and tenderness, with numbness and painful swelling of all the extremities, beginning with the right arm, in which she had been bled. The cerebral symptoms and progress of the case were very similar to the last case, with the additional symptoms of vomiting before death, which happened on the seventeenth day from delivery. On examination, the veins of the right arm were swelled, and filled with pus; the left lateral sinus of the dura mater contained a light-coloured clot, and the veins of the posterior and inferior parts of the left cerebral hemisphere entering into this sinus were distended with dark blood firmly coagulated. There was extensive softening of the posterior part of the left hemisphere, which contained in its vessels numerous small clots. The vessels of the uterus contained pus, as in the last instance.

The fourth case commenced two days after delivery, with intense headache, convulsions, and transient stupor. On her removal to the hospital, the headache continued, with slow, troubled utterance, tenderness of the abdomen, and fever. She was bled, and the blood presented no buffy coat. An hour afterwards she had a convulsion, in all respects like an epileptic attack, with coma, lasting for a quarter of an hour, and up to the morning of the next day, she had twelve nearly similar convulsions. The abdominal pain continued, and she had a shivering. The fourth day after delivery there were immobility, insensibility, and a contraction of the right limbs, with perpetual agitation of the left, afterwards plaintive cries, coma, stertor, resolution of the right limbs, continued agitation of the left; pulse irregular, 140. Death occurred next morning. On examination, there were clots in the sinuses of the dura mater, and ecchymosis on the surface of the left hemisphere; the vessels of the pia mater in the neighbourhood of this ecchymosis, contained reddish clots; the pia mater, both externally and in the ventricles, infiltrated with pus. The lungs contained miliary tubercles. The cavity of the pelvis, and various parts of the peritoneal cavity, contained pus; the uterine tissue was healthy; some clots of blood were in the venous sinuses.

The fifth case occurred in a subject affected with extensive pulmonary disease, who was seized with headache, and most of the symptoms mentioned in the first three cases, while yet undelivered, though at the full term of pregnancy. The morbid changes were in great part similar to those previously described; but the amount of softening of the cerebral substance was greater than in any of the others, and the number of veins occupied by the firm coagula smaller; so that this case seems more important, in reference to the peculiarities of the disease, than any of the preceding.—*Ranking's Abstract*, vol. vii.

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63. *Kiestein as a Test of Pregnancy.*—Dr. Golding has published an elaborate paper, in which he seeks to establish the just value of this sign. He commences by noticing in turn the several indications usually relied upon, as auscultation, state of the breasts, suppression of the menses; and he proceeds to the consideration of kiestein in a series of sections, embracing the several questions of interest connected with its formation.

The presence of the sound of the fœtal heart is, of course, the most unequivocal sign of pregnancy; but this is only available after the fourth month. The placental souffle he shows to be less trustworthy. Of the state of the breasts, he observes that no indication can be more equivocal. His conclusions on this point are as follows:—

1st. These conditions are equivocal after first pregnancies, seeing that the areola has undergone changes in colour, is increased in size, and has its follicles enlarged; these states remain permanent, though if the mammæ be observed during subsequent pregnancies, these characters may be better marked; it is only comparison, therefore, that will avail for practical elucidation.

2d. If the changes induced by utero-gestation are permanent, diseases of the uterus, by affecting the breasts sympathetically, may induce congestion and other changes in them, similar if not identical with those produced by pregnancy.

3d. In some rare instances, the changes described by Dr. Montgomery are absent even in first pregnancies; the areola remaining unchanged, and the mammæ flabby, till the commencement of lactation.

4th. In persons of fair complexion, the areola may be increased in extent, and have its follicles hypertrophied, without material change of hue.

5th. In those of dark complexion, the areola is naturally of a darker colour, and has its follicles better developed than in fair persons.

6th. During functional derangements of the uterus, the breasts have been noticed to undergo changes not readily distinguishable from those existing during gestation.

In drawing practical deductions from the suppression of the menses, Dr. Golding takes the following circumstances into account:

1st. Whether or no the cause of suppressed catamenia during utero-gestation be due to impregnation; or to other causes, in which, however, certain of the phenomena also attending pregnancy co-exist.

2d. That in some females, the menses are not suppressed during pregnancy or during lactations. The menstruations occurring under such circumstances, whether uterine or vaginal, and whether dependent upon normal or abnormal causes, is attended with the same physiological effects, as in ordinary menstruation, both during its occurrence and accidental suppression.

3d. Any functional derangement of the uterus or other organ reacting upon that viscus may so affect it as to cause suppression of the menses.

4th. Sometimes the menses, though apparently, are not suppressed, being secreted, but not evacuated. The retention may cause vomiting, enlargement of the abdomen, sympathetic affections of the mammæ and stomach, with other effects also concomitants of the gravid uterus.

5th. That however strong a presumptive evidence of pregnancy cessation of the menses may afford, it can never be certain evidence, unless corroborated by auscultation, or the indications afforded by the urine.

After thus discussing the usual signs of pregnancy, and showing the inconclusiveness of each under certain circumstances, the author next proceeds to the main object of his communication, the value of kiestein as a test.

The chief value he shows to consist in its being available during the whole period of gestation; in its existence alike in first and subsequent pregnancies; its being uninfluenced by the age, temperament, or habits of the female; its being found in pregnancy alone, and disappearing during lactation. When this coexists with amenorrhœa, Dr. Golding looks upon it as the only conclusive evidence of pregnancy before the fifth month.

In his investigation of the cause of kiestein in the urine, the author examines it under two aspects; 1st, as a secretion of the mammary glands; which are eliminated from the kidneys, not as yet being required for the nutrition of the fœtus; 2d, in its identity with milk. He then inquires under what circumstances its presence is most conclusive of pregnancy; what is the reason of its inconclusiveness, and whether kiestein is ever absent in pregnancy, and if so, whether it is really absent or only obscured by other matters?

The pellicle is determined by him to be most conclusive of the existence of pregnancy; when the maternal and fœtal systems are in a healthy condition respectively, it is then rarely absent. He recommends that, in searching for it, the urine examined should be that voided some hours after a meal. Sediments of lithates render the appearance more or less obscure, and therefore the most favourable conditions for finding the pellicle are the healthy state of the mother and fœtus, a non-sedimentary state of urine, and its alkaline reaction.

The reasons of the inconclusiveness of the appearance of the pellicle as a test of pregnancy are thus summed up by the author.

The kiestein, viewed as a secretion from the mammary glands eliminated by the kidneys, is influenced, as other secretions, by those conditions of the system which derange assimilation generally. Such agencies may diminish or entirely suppress the secretion of kiestein; when diminished, it forms a scanty scum on the surface of the urine, or may be entirely absent as long as the general derangement lasts. A plethoric state of the system also, in which the red lithates abound, influences the secretion of kiestein. The pellicle may be absent while the lithates exist, or be so scanty as not to form a uniform film. The yellow lithates do not interfere with its formation to the same extent.

On the question whether kiestein is ever absent throughout the utero-gestation, the author comes to the conclusion that it is occasionally absent, but only temporarily. He does not think that it is ever absent throughout the whole period of pregnancy. The general conclusions derived from his observations are as follows:

1st. Coetaneous with, or shortly subsequent to conception, the breasts assume a secreting action; the product of which, eliminated by the kidneys, forms kiestein.

2d. If this action of the mamma be disturbed, it is the result of disease, and may be removed by appropriate treatment.

3d. Kiestein, though not apparent, may still not be absent, but may exist in such small quantities as not to be appreciable.

4th. The essential characters of the pellicle are its iridescence, fatty nature, and cheesy odour. It also prevents the urine becoming putrid for some time.

5th. As the secretion of kiestein is a vital phenomenon, resulting from conception, it is often available before other signs of pregnancy.—*Ranking's Report on Midwifery, &c.*, in *Abstract*, vol. vii. from *British Record of Obst. Med.*, No. 1, 3, 5, 7.

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64. *Colour of the Vagina in Pregnancy.*—Dr. Albert states that of all the signs of pregnancy hitherto known, that derivable from the observation of the dark red colour of the vagina is the best, seen as it is by the aid of a speculum at so early a period of pregnancy, and proceeding progressively with the development of the uterus. He has tested its utility in about 30 cases, and has besides examined, with the same success, a great number of animals at various periods of gestation.—*Brit. and For. Med-Chirurg. Review*, July, 1848, from *Zeitschrift für Gebertskunde*, vol. xxiii. p. 449.

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65. *Observations on the Influence of the Death of the Fœtus in relation to its retention*

in, or expulsion from, the Uterus.—Prof. Simpson, at a meeting of the Edinburgh Obstetrical Society, Feb. 9th, 1848, stated that "the general law which regulated the occurrence of labour in relation to the death of the fœtus, was well known to be this—1. That usually, in from one to three weeks after the fœtus died, uterine contractions supervened, and effected its expulsion. But to this very general law there were various exceptions. For, 2. If the embryo died in early embryonic life, and the fœtal appendages continued to live and vegetate, expulsion might not supervene for months. He showed a case of hydatiginous ovum, where the embryo was not larger than an embryo of the sixth week, but the placenta, or rather the chorion, was the seat of hydatiginous hypertrophy and degeneration; and the mother (a patient of Mr. Girwood's, of Falkirk) calculated that she had passed the usual term of utero-gestation, not having menstruated for eleven months previously to the expulsion of this diseased ovum. 3. When the fœtus dies from the third month onwards (in consequence either of disease in its own organization, in its umbilical cord, or in its placenta), and a second twin living fœtus exists at the same time in utero, and this second fœtus continues to grow and keep up a correspondence of development between the organ and its contents, the dead and undeveloped twin may be retained up to the full term of pregnancy, and be then born along with the other living and full-sized child. 4. When the dead fœtus is thus retained, it is preserved free from the decomposition usually following death by all access of air to it being prevented. Sometimes it retains its usually rounded appearance and form if it continues to be surrounded by a sufficient quantity of liquor amnii; but in other cases where this protecting medium of liquor amnii is defective, the fœtus becomes gradually more and more squeezed between two forces,—viz. the parietes of the uterus on one side of it, and the other living twin or its membranes on the opposite side; and at last, when born, it is found compressed and *flattened* in form. Two such flattened fœtuses are in the University Museum; and many such cases are on record. 5. The birth of such undeveloped dead twins had sometimes given rise to most groundless and erroneous ideas of the existence of superfœtation. 6. Occasionally when one of twins died early in pregnancy, it was after a time expelled (when it happened to be situated near or over the os uteri); afterwards the uterus closed, and pregnancy went on to the full time with the remaining living child. He mentioned a case of a lady aborting of a fœtus about the third month, going on in pregnancy to the full time, and then being delivered of twins; having originally conceived of triplets. 7, This last circumstance evidently led to the practical deduction—that when a dead fœtus in its envelopes was expelled during the currency of pregnancy, and the uterus notwithstanding still remained large and apparently distended, its further contents should not be in any way interfered with; but rest and other means employed to avert the excitement of any additional uterine contraction, under the hope that a living twin might still be retained, and be carried onwards to the full term of utero-gestation.—*Monthly Journ. Med. Sci.*, May, 1848.

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66. *Epidemic Abortion.*—Dr. Schweich observes that a great number of abortions occurred at one time in his practice very near to each other, the women not having been heretofore liable to the accident, nor yet exposed to any exciting cause of its production. He is disposed to refer them to atmospheric causes, such as are capable of inducing epidemics. The winter had been warm and wet, and the spring dry, thus offering a confirmation of the aphorism of Hippocrates, "*At si hiems austrina, et valde pluvia, et placida fuerit, ver autem plus justo siccum et aquilonium, mulieres quidem, quibus partus ad ver imminet, ex quâvis causâ abortiunt.*" Witte, too, states that, under the same circumstances, numerous abortions occurred at Jena in 1686.—*Ibid.*, from *Casper's Wöchenschrift*, No. 7.

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67. *Excessive Itching occurring during successive Pregnancies and producing repeated Abortions.*—M. Maslieurat Lagemard relates, in the *Gazette Médicale*, a very remarkable case of this character. The subject of it was a female of small stature, and of a nervous temperament, having a fair and beautiful skin, without any appearance of eruption. She became pregnant for the first time at the age of twenty-one, and everything went on regularly until the sixth month, at which period a smart itching came in the skin over the whole body. This by degrees became

more severe, and towards the eighth month it became insupportable, particularly in the palms of the hands and over the abdomen, obliging her to scratch herself furiously, and finally this brought on the expulsion of a dead child. Throughout all this the skin remained fair, transparent, and without the least appearance of any eruption; immediately the child was expelled, the itching ceased, as if by enchantment. Some time after this she again became pregnant, and again, about the sixth month, the itchiness of the skin began, and by degrees acquired an extreme intensity, occasioning the expulsion of a dead child in the middle of the eighth month. She was scarcely delivered when the itchiness ceased. In the third pregnancy nothing particular occurred for eight months and a half, when the itchiness began, but had not arrived at its usual degree of intensity at the ninth month, when her accouchement took place favourably. The fourth pregnancy resembled the first, and she brought fourth a dead child at seven and a half months. The fifth pregnancy resembled the third, and she again was delivered of a healthy child. The sixth, seventh, and eighth, did not differ much from the two first in their character or consequences. In all these pregnancies the itchiness had occupied the whole surface of the body long before it invaded the palms of the hands; and it was only after the palms became affected that it acquired its greatest intensity. In the two instances where she went to her full time, the palms had remained exempt from the itchiness.—*Dub. Med. Press*, June 28, 1848.

68. *Condition of the Internal Face of the Uterus after Parturition.*—Dr. Colin, in a memoir read to the French Academy of Med. (Aug. 1848) stated, that his numerous researches had led him to conclude in contradiction to the greater number of modern accoucheurs—1. That it is not true that after parturition the muscular textures of the inner surface of the womb are denuded. 2. That a membranous and vascular layer remains even in cases of premature delivery. 3. That layer does not differ from the uterine surface of the decidua. 4. That the vascular remnant not only is not altogether destroyed by suppuration, but becomes the seat of the healing process, by which the uterine mucous membrane is reconstructed; an event which takes place between the twentieth and thirtieth day after parturition, and which is completed only after the termination of the second month following delivery.—*Med. Times*, Sept. 9th, 1848.

69. *Fracture of the Cranium before Delivery in a Fœtus at the full time.* By M. Blot.—A woman, æt. twenty-seven, who had been in labour for a short time,—having the os uteri somewhat dilated, and the membranes still entire,—fell from a second story, and fractured the right thigh. When carried into bed and examined, the child's head was found low down in the pelvis, and the bones crepitated as if broken in several parts. The child was delivered by the forceps; it was still-born. There was a great effusion of blood below the scalp; the parietal bones were broken into several parts. The dura mater and meninges were unhurt.—*Monthly Retros.*, Sept. 1848, from *Archives Générales de Méd.*, June 1848.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

70. *Crystals of Daturine from the Urine of a Man poisoned by Stramonium.*—The following remarkable case is related by Robert Allan, Staff Surgeon, 2d class, as occurring in the Mauritius. An Indian labourer, named Hitoo, was condemned by the Court of Assizes to ten years' hard labour in chains. He worked very unwillingly for about a month, and was brought into the Infirmary, on the 10th of February, 1846, in a state of insensibility, with stertorous breathing, dry, black tongue, injected conjunctiva and dilated pupils, ranging from 100 to 120. He was said to have eaten stramonium, which grows where he was sent to work that morning, six hours and a half previously.

The stomach-pump was applied, which brought up many entire seeds, and fragments of seeds, of the datura stramonium, but the action of the heart soon became more feeble, and notwithstanding the administration of stimulants, he continued to sink, and died an hour after admission, being about seven and a half hours after he was supposed to have taken the poison. The heart was felt beating several seconds after respiration had ceased.

The body was examined nineteen hours after death; at which time, there were evident marks of commencing putrefaction (Fahrenheit's thermometer being 88°). *Head.* Great turgescence of the integuments, as well as of the dura mater, tunica arachnoides and pia mater; brain firm and highly injected; the choroid plexus turgid, and the ventricles contained a little bloody serum; there was a small plate of bone deposited in the falx, near the crista-galli. *Chest.* Old, ribbon-like adhesions between the pleura of the left lung, and that lining the cavity of the chest on the anterior part, the substance of both lungs very vascular, in many parts; heart flaccid. *Abdomen.* Liver, spleen, pancreas, bladder and kidneys normal; the stomach contained about four ounces of ingesta, composed of rice, eighty-nine seeds of the datura stramonium, besides many fragments, pieces of manioc and tripe; there was a patch of extravasated blood, the size of a shilling, in the mucous coat of the larger curvature of that viscus, and a smaller patch of extravasation near the pyloric orifice; the whole mucous coat of the stomach was slightly congested, many entire seeds as well as fragments of seeds, of the stramonium, were also found throughout the entire length of the small intestines. About six ounces of urine were collected from Hitoo's bladder at the post-mortem examination, which I submitted to Ossean Henry's process for the detection of daturine (*Journal de Pharmacie*, vol. 21, May, 1835). Several clear crystals were obtained, some being pentahedral, while others were surrounded with a quantity of oily matter, which obscured their shape. Some of these crystals were dissolved in distilled water, and the solution dropped into the eye of a man with lenticular cataract. In half an hour, the pupil was visibly dilated and became very much so, in an hour afterwards. Diluted sulphuric acid was added to some of the product of Ossian Henry's process, and in a few days, many acicular crystals of sulphate of daturine were observed.—*Lancet*, Sept. 18th, 1847, p. 298.

T. R. B.

71. *Detection of Human Hair by the Microscope.*—At the last meeting of the Microscopical Society of London, Mr. John Quekett, the microscopic demonstrator to the Royal College of Surgeons, read a very interesting paper on the importance of the microscope in the determination of minute structures of a doubtful nature. The author stated that his object in bringing this communication before the society, was to point out how minute portions of skin, which had been exposed to the air for centuries, could be recognized as human. There existed in this country, certain traditions, that persons who had committed sacrilege were flayed, and their skins nailed to the doors of the churches they had robbed, as a terror to the sacrilegists, and three portions of such skin had been forwarded to the author for examination, by Albert Way, the Secretary of the Archæological Society. The first was taken from one of the doors of Worcester cathedral, where now only portions remain underneath the ornamental clamps and hinges. The second specimen was taken from the church door of Hadstock in Essex, where it had been protected for many centuries, by an iron grating; this portion of skin was said to have been that of a Danish pirate, and is supposed to be nearly 900 years old. The third specimen was taken from the church door of Copford, also in Essex. On all the specimens, Mr. Quekett succeeded in finding two or three hairs, which the microscope clearly proved to be human. Thus this valuable instrument is able to confirm a tradition, and prove the former prevalence of a practice which has been doubted by many archæologists.—*London Medical Gazette*, June 9, 1848.

T. R. B.

72. *Noxious Gases in Houses.*—"The noxious products of combustion are carbonic acid and sulphurous acid, with probably a portion of ammonia" (from cyanogen), and unconsumed sulphureted and carbureted hydrogen, with naphtha vapour. It is just as important to carry out of a room the products of the combustion of coal gas, as of coal itself. Faraday's ingenious invention for this purpose is adopted in the new House of Lords, and is now coming into general use. A large portion of the library of the Athenæum Club was destroyed by the acid vapour evolved by the combustion of gas.—*Ibid.*, July 2d, 1847. T. R. B.

73. *Protracted Gestation.*—In the case of Catterall v. Catterall, decided last week in the Consistory Court, in which the husband proceeded against the wife for a divorce on the ground of adultery, the main proof was that a child had been born *twelve* months after the husband had left his wife in New South Wales, for the purpose of proceeding to this country. Dr. Lushington, without entering into the question of protracted gestation, pronounced for the divorce.—*Ibid.*, July 23d, 1847. T. R. B.

74. *Effect of Poisons on Animal Heat.*—M. DEMARQUAY has proved by a series of experiments on animals, that the heat of the body is diminished by the action of some poisons, and increased by that of others. The poisonous agents which cause a *diminution* of temperature, are the vapour of ether (by inhalation), the cyanide of potassium, corrosive sublimate, arsenic, tartar emetic, muriate of morphia and ammonia. These different substances were injected into the stomach, and the observations then made. The poisons which caused an *increase* of temperature were digitalis, belladonna, croton oil and strychnia. One poison, tobacco, appeared to have no effect whatever on animal heat.—*Ibid.*, July 30th, 1847.
T. R. B.

75. *Dangerous Effects produced by the Bleaching of Lace.*—In the process of manufacture, Brussels lace is liable to become soiled. If it were washed, its value would be reduced; hence the so-called bleaching of this lace is effected by impregnating the fibre with carbonate of lead. M. BLANCHET has recently communicated to the Academy of Sciences some cases in which he had observed that the workmen engaged in this manufacture, suffered from an impairment of the senses of vision and hearing. The disease presented all the characters of saturnine paralysis. He visited the manufactory, and ascertained that the lace, covered with the finely-powdered carbonate of lead, was well beaten between sheets of paper. The workmen thus breathed an atmosphere constantly impregnated with the poison. The cause of the symptoms was at once explained.

M. Chevallier had previously called the attention of the French government to the subject. He observed that the workmen were liable to suffer from colica pictonum, and suggested that the disease might also appear as a just retribution in those females who were in the habit of wearing lace so whitened, in contact with the skin.—*Ibid.*, Dec. 24th, 1847. T. R. B.

76. *Caustic Potash, an antidote to the Poison of Cantharides*—Dr. MULOCK, of Dublin, states that in three cases of strangury, caused by blistering with cantharides, he found the solution of caustic potash a perfect remedy. Two of the cases were head affections, where opium was inadmissible. Thirty drops, given in half a wine-glass of water every hour, gave relief before the third dose was exhibited. "What led me to the use of this preparation was its known effects in relieving the stings of wasps or bees, when applied to the skin. I considered that it might also relieve the acrid principle of the cantharides. Indeed from its effects, it would probably be a remedy for an overdose of that medicine, if given in proper time. In looking over the various works on irritative poisons, I find no antidote to the poison of cantharides, and mention this now, that further trial may be made of its effects in giving relief."—*Dublin Quart. Journ. of Med. Sciences*, August, 1848.
T. R. B.

77. *Post-Mortem Digestion of the Stomach.*—It is affirmed that one and an essential object of the vital principle, so called, is to give to the animal body a certain resistance against the operation of destructive chemical action. But much of this does not appear to be well-founded. In the case of the stomach, for example, it is known that during life, it resists the solvent powers of the gastric juice; but, as we learned first from Hunter, after death, if it happens that the organ contains food, the left end is frequently found dissolved. The most obvious explanation of this phenomenon would be, that some vital power defends the stomach during life, against the chemical solvent. But when carefully investigated, it is found that the solution takes place so rapidly as to affect the stomach, whilst it is still so far alive, that its muscular coat would respond to the galvanic stimulus; and,

moreover, that even living animals, earthworms, and leeches, introduced into the stomach, enclosed within perforated spheres, so that they were guarded from muscular compression, are dissolved by the gastric juice. These considerations point, then, to another explanation, and in place of elucidating that one among the many marvels of animal existence, the defence of an organized tissue against an agent expressly provided in the economy to act upon such substances, by any particular vital property, we should rather seek for the reason in chemical action resisting chemical action; or, in other words, it may be assumed that whatever degree of protection is required, is furnished by the defensive mucus of the organ. This protection is only necessary where there is food in the stomach, for at other times, the elements of the gastric juice are enclosed within the different orders of epithelium cells.—From *Mr. Grainger's Hunterian Oration, London Medical Gazette*, June 30, 1848.

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78. *Poisoning by the Seeds of the Jatropha Curcas (Physic Nut of the West Indies).* By H. Letheby, M. B., Lecturer on Chemistry at the London Hospital.—On the afternoon of June 28th, James Cole, aged 38, presented himself for medical relief at the London Hospital. He stated that his occupation was that of a labourer at the London Docks; that in the morning, while at work there, he met with a broken bag, containing some seeds,—of which he produced a sample (they were the seeds of the *jatropha*): that in consequence of being told by two sailors who were passing, that the seeds were wholesome, he removed the husks from five of them and ate the kernels; but that he had no sooner done so, than another sailor whom he met, assured him that he was eating a rank poison: this he soon found was the case; for, after the lapse of from ten minutes to a quarter of an hour, he began, he said, to experience a burning sensation in his mouth and throat, and the abdomen felt sore and distended. In the course of a few minutes after this, he was seized with violent sickness, and during the subsequent hour, vomited five times and was very actively purged. The burning sensation in the fauces, and the pain in the abdomen still continued: he also felt hot and feverish. Towards the termination of the first hour and a-half, a profuse perspiration broke out upon the whole surface of the body, and then he became so exceedingly weak as hardly to be able to walk about. During the next half hour, the debility had greatly increased; he felt extremely giddy, became delirious, and was ultimately quite insensible. He remained in this state nearly twenty minutes, but in another half hour, had so far recovered as to be able to walk to the London Hospital, where he presented himself after an interval of about four hours after having taken the poison. At this period he was very weak, and complained of a sensation of heat and dryness of the mouth and throat, of numbness in the tongue and of pain in the abdominal region. His countenance was pale and somewhat anxious; the pupils were natural; the hands rather cold, the pulse 140, and weak. By means of an opiate and a mild cordial, he was soon restored, and enabled to return to his home.

Dr. Letheby states, and it is this that gives interest to the above case, that the physic nut is frequently imported into England, and it is believed that it is used for the manufacture of what is now and then met with at drug sales, under the name of English croton oil.

He also points out the similarity of action from this, with that produced by the seeds of the castor oil plant, and of the croton tiglium.

"Mr. Bennet says that four of the jatropha seeds will act on a man as a powerful cathartic, but it is evident from the case here mentioned, that danger might be incurred by the administration of such a dose; in fact, Dr. Christison states that he has known violent vomiting and purging occasioned by a few grains of the cake left after the expression of the fixed oil from the bruised seeds. It appears from this that the poisonous principle of the jatropha, like that of the croton and ricinus, exists in the solid and non-oleaginous parts of the seed. This view is confirmed by another statement made by Dr. Christison, that from twelve to fifteen drops of the oil expressed from the physic nut, produced exactly the same effects as an ounce of castor oil. Now I have found that three kernels will only yield one drop of oil; it would therefore take from thirty-six to forty-five seeds to produce the dose mentioned by Dr. Christison; and it is scarcely necessary to say that even thirty-six of the seeds would be quite sufficient to occasion the death of the individual.—*London Medical Gazette*, July 21, 1848. T. R. B.

79. *Death from the Bite of a Man.*—A few weeks ago, when the 4th Royal Irish Dragoon Guards were stationed at Nottingham barracks, two of the privates quarrelled, and one bit the other on the finger. The wound festered, and at length the man's whole body became affected; the bones, denuded of flesh, protruding through the skin. The sufferer lingered until Monday, when he was relieved by death. A despatch has been sent to Manchester (where the regiment is now stationed) for witnesses, and with orders for the man, who so savagely attacked the deceased, to be taken in custody, preparatory to an inquest being held upon the body. The case has excited great interest in a "medical point of view."—*Atlas*, August 19, 1848. T. R. B.

ANÆSTHETIC AGENTS.

80. *Anæsthetic Agents.*—The journals continue to teem with accounts of operations performed on patients rendered insensible to pain by the inhalation of chloroform. Nothing new of importance has, however, been elicited in relation to the physiological action of this agent, or to its therapeutic applications, though considerable additional evidence has been furnished in support of the views previously developed. The principal novelty which has been brought forward is a new mode of applying anæsthetic agents, by which *local anæsthesia* is produced, the sensorium not being affected, consciousness being retained, and parts not submitted to the action of the agent being unaffected. Many facts have also come to light illustrative of the toxical action of chloroform, and showing most conclusively that the cautions we have so earnestly urged upon our readers in regard to the use of this powerful agent, are well worthy of attention; and that our fears of ill effects from the extreme recklessness which has prevailed in its use, were not purely imaginary. That a greater number of examples of the injurious effects of chloroform have not been recorded, we can only explain by the circumstance that while so many were loudly boasting of their success in its use, others were ashamed to admit that they were less successful, and were disposed to ascribe the unpleasant effects they witnessed to their inexperience in relation to the proper mode of administering it. In this way, also, can we alone explain the discrepancies which have sometimes existed between the reports we have received from those who have witnessed operations and the published accounts of them.

In the following articles we have endeavored to embrace all the facts of importance in relation to anæsthetic agents, which have been brought to light since the publication of our last number.

81. *On the Practical Value of Anæsthetic Agents in Surgical Operations.*—Mr. Humphrey, in an interesting paper in the *Prov. Med. and Surg. Journ.* (Aug. 9th, 1848), observes, "that the practical value of anæsthetic agents in surgical operations, can be decided by observation alone, for we must be unwilling to admit speculation upon a discovery which had taken us so much by surprise, and exceeded our highest expectation of it. Surely, by no previous discovery, except perhaps, that inestimable one of vaccination, has so much pain been saved at so little cost. That we should be able to remove limbs and perform other grave operations without the infliction of pain, was a triumph too great for our belief. Still less could we imagine that an agent capable of producing such an effect would be unattended by deleterious or even fatal results in the indiscriminate use which was too likely to be made of it. Though I commenced the use of ether very early after its discovery was announced in this country, I must say I did so with much apprehension, and with great care. It was a source of no little anxiety to me, and I used to watch the weekly periodicals in the fear that they would soon teem with the records of fatal cases. Even at the present time, after the administration of ether and chloroform in a great number of cases during the last year

and a half, I cannot forget that I am wielding a powerful and very dangerous weapon, which requires the greatest care and attention in its use.

"I have witnessed the administration of ether and chloroform in some hundred cases, nearly all the operations of importance in our hospital having been performed upon patients subject to the influence of one or other of these agents during the last year and a half. The ether was used from Christmas, 1846, to October, 1847. Two patients, young women, one of whom suffered amputation of the toe, the other of the thigh, were excitable, hysterical, or delirious, and at times faint, during the remainder of the day. Two other women to whom ether was exhibited for slight operations, were said not to have recovered their memory and the full use of their mental faculties for several days after. One lad died with peculiar symptoms of oppression of the sensorium, preceded by delirium, three days after amputation of the arm on account of accident. Ether was administered; its effect was quick and complete and soon passed off, so that he slept well and the delirium was not observed till the following morning; we cannot with certainty attribute the fatal result in this case to the ether. With these exceptions I saw no ill consequences from the inhalation of ether beyond, occasionally, headache, sickness, and giddiness, lasting for a few hours.

"Since its introduction, chloroform has entirely superseded ether in our practice; we have been in the daily habit of using it during the last nine months, and I am not aware that its administration has been productive of any ill consequence in a single case. It is usually given on a small sponge fixed in a mouth-piece to prevent excoriation of the lips. The mouth-piece is not closely applied at first, so that some air is admitted in the early inspiration. A drachm of the fluid is poured upon the sponge, and additional doses of half a drachm are given as occasion requires. The best time for commencing the operation is when the muscular system is relaxed and the head falls back. The administrator should be careful to remove the inhaler directly any snoring is observed, and indeed he will do well to stop short of that point. The only formidable symptoms which I have witnessed from the administration of chloroform have been those of fainting. On one or two occasions these were rather alarming. Splashing the face freely with cold water was found to be the most effectual means of inducing reaction. I cannot tell what conditions of the system decidedly contraindicate the use of chloroform, but I should be unwilling to administer it to persons in whom fainting was likely to be attended with serious consequences,—such as old people, or persons with feeble or diseased heart, intermitting pulse, or disease of brain.

"I have observed chloroform and ether to act exceedingly well on delicate and enfeebled persons, those very cases in which we have most to apprehend from the pain and shock of an operation; and the knowledge of this fact has induced me to recommend amputation in some cases where I should have been unwilling to submit the patient to the unmitigated pain of such a procedure.

"Of the influence of chloroform in preventing the sufferings of the patient, during an operation, there can be no doubt, and if it do no more, it is a wondrous boon; but the more important question of its influence upon the ultimate recovery of the patient can be decided only by the carefully collected results of extensive experience. I can venture only to give my own impressions, which have gradually grown, from the observation of many patients, and which are decidedly in favour of the agent. Though quite prepared for occasional fatal accidents, during its administration, I believe that the average success of operations will be increased by its cautious and discriminate use. The shock to the system (a very important item in an operation), is so closely connected with the pain felt during the time, and is so greatly lessened by the absence of pain under the influence of chloroform, that in several instances, and those cases in which its effects were most to be dreaded, I have been unable to trace any of its usual consequences. There has been certainly, on the whole, less prostration followed by feverish reaction, after operations under ether and chloroform, than we used to witness before the introduction of these agents.

"There seems, moreover, to be a connection between the pain felt during an operation, and that which is experienced in the wound afterwards; for you cannot have failed to observe the comparative freedom from pain which patients enjoy for some time after operations which have been performed under the influence of ether and chloroform; they often converse on other subjects, as though there were nothing the matter with them, and when placed in bed they are at ease, and, perhaps, fall asleep.

"Beyond the benefits which result from the lessening of the shock of the operation, and the diminution of the pain for a variable period afterwards, I am not aware that ether or chloroform exerts any influence, good or bad, upon the progress of the wound, or the ultimate recovery of the patient.

"We have sometimes thought the oozing of blood from wounds, after the administration of ether, to be greater than under ordinary circumstances. It always ceased upon the application of moderate pressure, and secondary hemorrhage very rarely occurred.

"Though I cannot but regard the introduction of anæsthetic agents as a general improvement in surgery, I hope enough has been said to show that I am not without due sense of the danger that may result from them, and of the great caution required in the employment of such very powerful agents."

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82. *Ammonia as an Antidote to Anæsthetic Agents.*—Mr. R. O. JOHNSTON suggests (*Prov. Med. & Surg. Journ.*, June 29th), the inhalation of the vapour of ammonia as an antidote to anæsthetic agents, and relates some experiments which seem to justify the suggestion.

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83. *Tetanus successfully treated by Chloroform.*—Mr. R. L. BAKER reports (in the *Lancet*, June 3d) the case of a man who had his hand crushed in some machinery, and a portion of the first phalanx of the ring finger of the right hand torn off, leaving a portion of the integument on the upper side sufficient to cover the end of the bone, and to form a good stump. It was dressed in the usual way, and the patient continued his employment. Two days afterwards the fingers became swollen and painful, and on the fifth day after the accident, Mr. B. received an urgent message to visit the patient with Dr. Fletcher. They found him perfectly stiff with tetanic spasm. He appeared conscious, but had lost all power of articulation and deglutition. The whole surface of his body was bathed in perspiration; every muscle seemed implicated in the spastic action; indeed, he had all the ordinary symptoms of traumatic tetanus, and no hope was entertained of his recovering from this condition. They ordered a turpentine enema to be administered immediately, and the tincture of cannabis sativa to be given in doses of twenty minims every three hours; and thinking it a favourable case for the application of the chloroform, it was arranged that it should be administered on the next visit. At 2 P. M. Mr. Baker again saw him, and found him in the same state in which they left him in the morning. The attendants could not get him to swallow the medicine, and made ineffectual attempts to give a glyster. Under these circumstances he administered the chloroform on a handkerchief, and in about three minutes the muscles began to relax. The thumb, which had been firmly grasped by the fingers into the palm, became quite easily moved; for a short time he muttered incoherently, then answered two or three questions rationally, and finally sank into a sound sleep, with the muscular system relaxed and free from convulsions. Mr. Baker kept up the effect of the chloroform for three quarters of an hour, and left him asleep, having prescribed a blister to be applied to the back of the neck, and two grains of calomel every two hours, to get free action of the bowels. At 9 P. M. he again visited him, and learned that an hour after he had left him, the patient awoke, as if from sleep, with the free use of his limbs restored, and asking to be assisted to the night-chair, where he had a copious stool, and entered into rational conversation with those around him. From this time his general health gradually improved; but the finger continued much swollen. Finding, on the 3d ultimo, that the pain had increased, with slight muscular convulsive twitches, and thinking that the finger might be the cause of irritation, and, consequently, being fearful of a return of the tetanic symptoms, Mr. Baker determined to remove the finger at once. Not having the chloroform with him, he amputated it without its use; and since its removal there has been no return of the convulsive symptoms, and the patient is doing well.

The tetanus came on five days after the accident, and the finger was amputated on the eleventh day after the original injury, and six days after the successful administration of chloroform.—*Prov. Med. & Surg. Journ.*, June 14, 1848.

84. *Local Effects of Chloroform and other Anæsthetic Agents.*—Mr. Nunneley, at the annual meeting of the Yorkshire branch of the Prov. Med. and Surg. Association, stated that for many months he had been engaged in making experimental researches on these agents, with a view to ascertain, as far as possible, the modus operandi, the doses which may be borne with impunity, and the different modes of application; as well as, in case of an overdose, the best means to be adopted to counteract it. His experiments have not merely extended to the common anæsthetic agents employed, such as ether and chloroform, but he has been endeavouring to ascertain whether or not there may be some others, which may either be more safely administered, or may possess still greater advantages than the usual agents employed; which appeared to him to be by no means impossible, inasmuch as, so far as he could ascertain, the selection of those now employed, rather than others, seemed to have depended more upon accident than deduction from experimental research, proving them to be in all respects the best. He stated that he believed it not improbable that it would ultimately be found, that all those preparations which have a *radical basis*, (in the language of modern chemistry,) such as acetic ether, bisulphuret of carbon, aldehyde, and many others of an analogous character, upon some of which he had made extensive experiments, would possess similar properties on the animal economy.

Mr. Nunneley was also prepared to state, *that chloroform appeared to be most deleterious to life*, to require the greatest care in its administration, and that the boundary up to a fatal dose is by no means well marked—that of two animals, in apparently the same condition, the same dose being given in precisely the same way to both, the one will speedily die, while the other will bear it with impunity,—that from the effects observed, he has reason to think the ultimate effects are in some respects not dissimilar to those produced by prussic acid,—that to some animals, as for instance the newt, the frog, the toad, some fish, slugs, snails, and some insects, the effects are *more* rapidly fatal than prussic acid of Scheele's strength; and that even in higher animals, when under the influence of an incomplete dose, or recovering from the effects of a large dose of either chloroform or prussic acid, the phenomena are in many respects very similar,—and further, that the numerous *post-mortem* examinations which he has made, fully corroborated this opinion. He stated that acetic ether, with which he had made numerous experiments, possesses very considerable anæsthetic powers,—that bisulphuret of carbon does also possess to some extent similar power, and so far as his experiments go, it is very important to add, that this power is of a safe character, the animal speedily recovering. But of all these remedies he believes that sulphuric ether will be found to be the safest and least noxious to life.

On these points Mr. Nunneley intends hereafter to lay his experiments, already very numerous and varied, before the profession. His chief object, on the present occasion, was to call the attention of the profession to experiments proving, as he thinks, the value and safety of a *new mode* of administering these agents, and to show that the action of all, or most of these agents, might be produced *locally by local applications*, the sensorium being unaffected, consciousness being retained, and the limbs not subjected to their influence being unaffected. He stated that either by *immersion* in a small quantity, or by the *vapour applied* merely for a limited period, a limb may be rendered *perfectly motionless and senseless*, and what may be an additional advantage, *fixed in any desired position.* He had immersed his finger in these fluids for about half an hour or an hour, and at the end of this period the finger was nearly powerless and insensible, and that it was forty-eight hours before the effects entirely disappeared, a sensation of heat and discomfort extending along the tract of the nerves to the axilla. Before operating on a difficult case for artificial pupil, he had applied for twenty minutes a small quantity of the vapour of chloroform to the eye by means of a small jar which accurately fitted the orbit, with the effect of rendering the parts nearly insensible. The first effect of these agents, when locally applied, is to produce redness, heat and smarting, which subside, followed by swelling and redness of the integuments, which remain for some time. Mr. Nunneley stated that he could completely paralyze any limb of frogs or toads by immersion or exposure to the vapour, in about five minutes or less; and he mentioned, as a curious fact, that if the exposure to the influence were continued longer than was sufficient to produce a local effect, this influence extended to the corresponding limb of the other side: thus, for instance, if one hind leg became *too much* influenced, the other hind leg partook of the same effect—if the fore leg were too much affected, then the other fore leg became so likewise, and subsequently, the whole body—a result which Mr. Nunneley mentioned as strongly corroborative of his experiments with prussic acid, as detailed in the last volume of the "Provincial Transactions," and strongly supporting the opinions of Dr. Marshall Hall on "reflex action." By this new mode of application to the hind legs of rabbits, he had also been enabled to amputate the toes without the least indication of feeling.

These views were illustrated by a series of interesting experiments on frogs and toads, in which, after immersion for a few minutes, the limbs became insensible, and were amputated in repeated portions without any symptoms of pain whatever.

[We are indebted to Mr. Nunneley for the foregoing account, (taken from the forthcoming volume of Mr. Braithwaite's "Retrospect,") and also for a letter on the mode of performing the experiments on animals, from which the following is an extract:]—

"For showing the local effect, nothing is better adapted than the living leg or legs of a frog. All that is necessary is to put a few drops of the agent we wish to ascertain the effect of, into an ounce, ounce and a half, or two ounce vial, according to the size of the frog, having such a mouth as to receive the limb, and just fit round the upper part of the thigh, without, however, compressing it, and in order to avoid the vapour escaping, then passing round a few folds of a strip of linen or other bandage. If it is wished to see the effects of the vapour, the bottle should be sufficiently long not to allow the toes to touch the fluid, and the bottle should be kept quite still in an upright position; but if it be wished to apply the fluid itself, then the toes should touch the bottom, or the bottle be from time to time placed on the side in order to allow the fluid to pass over the limb, by which proceeding but little of the substance is required. At first, the creature struggles, the fluid evidently acting as a stimulant, and at that time a little effort is required to keep it in its position; presently it will remain *in situ*, for the immersed member becomes still and motionless. In from two to five minutes the full effect is produced, and the limb is perfectly insensible. If one leg be kept in too long, the other hind leg is affected, or the whole body is brought under the influence of it: when the experiment is less satisfactory, and the animal is liable to die. After the application the limb remains for some time swollen, and the colour of the skin is altered.

"In the case of other animals, the time necessary for immersion, before complete insensibility takes place, will vary with circumstances, as to the temperature, but more especially the aptitude of the integument for absorption, and the nature of its covering. Thus, if the skin be hard, the epidermis thick, with the hair stiff and long, then a considerable period will be required. In the case of a rabbit, the other night, after an hour's immersion, I cut off the whole of the toes in succession, and then amputated the entire foot, cutting through the metatarsal, and then the tarsal bone, the creature lying upon my knees in the most quiescent state possible, there not being the least disturbance of the countenance during these operations. But the moment either of the other limbs was touched, and also what is of great interest, the *same limb above where the chloroform had reached*, it at once started up, with every indication of pain, showing how precisely the effect may be limited. The same operations I have also performed upon a kitten, and upon two dogs (old); these were, as might be expected, after a similar length of immersion, though considerable diminution of sensibility was produced, not rendered entirely devoid of feeling.

"I may mention that to-day (June 22d), I have operated upon a staphylomatous eye, in a man from a distance, after the local action of chloroform, when I removed the entire cornea with a small portion of sclerotic coat and iris, with hardly any infliction of pain; and what is singular, so completely were the muscles of the globe affected, that for some time afterwards the remains of the eye did not collapse, although their attachments were not cut through. The fluid had been applied longer than necessary, and longer than I had intended, for, after having given directions that it should be applied until my arrival, I was detained away longer than I had expected.

"I have been making experiments upon two new agents, both of which I find to possess considerable anæsthetic property, and one of which I believe will prove to be superior in every respect to chloroform."—*Prov. Med. and Surg. Journ.*, June, 1848.

85. *Local Anæsthesia: Notes on its Artificial Production by Chloroform, &c., in the Lower Animals and Man.* By J. Y. SIMPSON, M. D., &c., Prof. of Mid., &c. (*Prov. Med. and Surg. Journ.*, July 12th, 1848.)—In this paper, the learned Professor, after some remarks tending to show that the artificial production of a state of general anæsthesia before the performance of surgical operations, is not altogether an idea of modern times, and that the ancients also seem to have entertained the idea of the possibility of producing a state of *local* and limited anæsthesia in any part operated upon, gives the results of a number of experiments performed by him upon the lower animals, and two upon man, with a view to the possibility of producing a state of local anæsthesia. His experiments on the lower animals were most striking and satisfactory, but our limits will not permit us to detail them. The following are the general results of his experiments on the human subject:—

"1. When the hand is exposed to an anæsthetic vapour, it betimes presents the sensations of a limb benumbed, by compression of its larger nervous trunks—the sensations, in fact, of partial or commencing paralysis. Usually after a short time, a glowing or burning feeling is perceived in the parts most exposed, and gradually there supervenes a sensation of thrilling and pricking (like a limb asleep), which deepens more and more. The skin turns red, and the hand at last becomes stiff and clumsy, and feels as if enlarged, and painful impressions, as pricking, pinching, &c., are felt less and less than in the other unexposed hand. After the hand experimented upon is removed from the vapour, it is generally half an hour or more before its usual normal feelings are quite restored. The nerves of motion are usually apparently as much affected as the nerves of sensation.

"2. When the jar containing the chloroform or other anæsthetic fluid experimented upon, was immersed in warm water, so as to raise the vapour of the fluid more fully and quickly, the resulting anæsthetic effect was always greatly increased, both in rapidity and intensity.

"3. The vapour of chloroform proved stronger than any other that was tried. When one hand, for instance, was immersed in a jar containing the vapour of sulphuric ether, and the other in a jar containing the vapour of chloroform, (both jars containing similar quantities, and being subjected to the same degree of heat,) the hand in the chloroform jar was both more speedily and more deeply affected than the other. In addition to the vapour of chloroform and ether, I have tried comparative experiments with the vapours of aldehyde, bisulphuret of carbon, iodide of methyle,* &c. The aldehyde had little or no effect of any kind. The iodide of methyle produced a very severe burning sensation, and left the hand intensely red and erythematous for a day or two afterwards, but with no marked anæsthetic influence. Among several of us that tried the vapour of bisulphuret of carbon, only one bore it for any length of time, (about an hour,) and in him it did not render the hand anæsthetic in any very appreciable degree; in myself and others the sensation of heat and burning became so utterly intolerable, as to force us to withdraw the hand in two or three minutes. Immersion of the hand for half an hour in Dr. Fleming's very powerful tincture of aconite,† or in a strong tincture of opium and of Indian hemp, and in a strong solution of belladonna, produced no appreciable anæsthetic effect.

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* "Two or three months ago I began a series of experiments with the intention of testing the anæsthetic effects (if any) of the various respirable compounds of methyle, acetyle, &c. I was prevented from proceeding far in the inquiry, in consequence of the effects following the inhalation of the compound mentioned in the text—viz., iodide of methyle. I found it very powerfully anæsthetic, but dangerously so. After inhaling a small quantity of it for two or three minutes, I remained for some seconds without feeling much effect; but objects immediately began to multiply before my eyes, and I fell down in a state of insensibility, which continued for upwards of an hour. I did not recover from the effects of it for some days."

† "Some other forms of preparations of this and the other substances may possibly produce different results, as we know that aconite, when chewed, causes a numb-

"4. The hand, when plunged in liquid chloroform, is usually somewhat more deeply apathized than the other hand simultaneously held in the vapour of chloroform. This was the more general result with those who tried the experiment; but in some the chloroform vapour was as anæsthetic, or more so, than the liquid. Few persons can keep the hand for any adequate length of time in liquid chloroform; the sensation of burning becomes so intense and insufferable, as to force them to withdraw it in a very few minutes. On one occasion I held my hand for upwards of an hour in liquid chloroform without the part being more deeply apathized than it would have been by exposure to the vapour. One of my pupils, Mr. Adams, perseveringly retained his hand in the liquid chloroform for upwards of two hours: no great or very marked degree of local anæsthesia resulted. In these cases, in which the hand was long steeped in liquid chloroform, the sensations of burning returned severely, from time to time, as if in waves, during the experiment; and on removing it from the jar, the feelings of heat were temporarily aggravated; the normal sensibility of the parts speedily returned, and was completely restored within an hour or two in all, but the skin sometimes remained red and injected for a longer period, occasionally for several hours.

"5. The anæsthetic effect of chloroform, &c., is increased, both in rapidity and in degree, by immersing the hand, with the cuticle softened and moist. When one hand, for instance, is immersed without any preparation, and the other is prepared by being bathed and fomented for ten or twenty minutes previously, the latter almost immediately begins to tingle under exposure to the vapour, the dry hand not for some minutes; the degree of anæsthesia is also ultimately deeper in the moistened hand.

"6. The degree of delicacy of skin in the person or part exposed to the anæsthetic vapour influences the result. In females I have seen the degree of the local anæsthesia of the hand that was produced, much greater and deeper than I could ever render it in the male subject. In applying the vapour of chloroform in small cupping-glasses, &c., to different parts of the body, as the insides of the arms, &c., the resulting degree of local anæsthesia seemed, in a great measure, regulated by the tenuity of the skin of the part experimented upon. The skin of the axilla seems too tender to allow of the vapour being applied for a length of time sufficient to produce anæsthesia. One of my students, who kept both his lower extremities enveloped in strong chloroform vapour for three continuous hours, felt no appreciable local anæsthetic effect from it.

"When strong chloroform vapour is locally applied to mucous surfaces, the attendant sensations of heat and smarting are too severe to allow of its sufficient continuance; at least, this is the result that I have obtained in applying it with small glasses to the inside of the lips, the tongue, and eye. Mr. Nunneley states, as we have already mentioned, that before operating on a difficult case of artificial pupil, he had applied for twenty minutes, a small quantity of the vapour of chloroform to the eye, by means of a small jar which accurately filled the orbit, with the effect of rendering the parts nearly insensible. Dr. Duncan and myself have repeatedly tried this experiment upon ourselves; but in none of the trials which we made, with the eye either shut or open, could we endure the burning action of the vapour upon the part above two or three minutes, and with no other result except always rendering the eye experimented upon red and injected, and suffused with tears.*

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ness and tingling in the lips and tongue, lasting for some hours.—See 'Christison on Poisons,' p. 2."

* "I have tried the application of various anæsthetic gases and vapours to the vagina, in cases of vaginal irritation and neuralgia, but hitherto without much success. The stronger forms cannot be borne. I was induced to try them in consequence of the following curious statement regarding carbonic acid, published by Dr. Pereira ('Materia Medica,' Vol. I. p. 155).—'A lady, who had suffered a considerable time from some uterine affection, and had derived no relief from the treatment adopted, was advised to consult a physician in Italy (Dr. Rossi). After he had examined the condition of the uterus, he assured her there was no organic disease, but merely a

"The degree of anæsthesia produced in the hand by exposure of it to the strong vapour of chloroform, does not, in general, perceptibly increase after fifteen or twenty minutes. The same sensations continue if the hand is still retained in the jar; but an increased length of exposure does not, after a time, produce a corresponding increased degree of local insensibility.

"But, finally and specially, I would observe that the degree of local anæsthesia produced in the human hand or skin, by exposing it to the local action of the vapour of chloroform, has never, in my experiments, been by any means so deep and complete in its character as to give the chance of annulling the pain of any severe operation, such as the deep incision, or amputation of a finger. As compared with the other non-exposed hand, the chloroformed hand is generally rendered, to a marked amount, *less* sensitive; but the insensibility is never, I fear, so entire and perfect as will save the patient from the pain of the surgeon's knife. In short, I entirely doubt, whether, in the human subject, we shall ever be able to reduce the knowledge of this possible production of partial local anæsthesia to any practical purpose. It is principally interesting in a toxicological and physiological point of view, and in relation to the doctrine of the mode of action of anæsthetic agents.* Its bearings are more upon the theory than upon the practice of anæsthesia.

"These remarks relate to local anæsthesia as capable of being produced by the anæsthetic agents with which we are at present acquainted. Others may no doubt yet be detected, much more powerful than any we at present know,† and their local application may enable us to effect the local anæsthesia desired. At the same time, this consummation even, seems doubtful; for, perhaps, any agent possessing a deeper and more rapid anæsthetic local power, would, by absorption, affect the system generally, and it may be, dangerously, before complete local insensibility of a part could be effected. Some time ago, in attempting to produce local anæsthesia in my hand, by exposing it to the vapour of hydrocyanic acid, ere the hand was much, or very perceptibly benumbed, I began to feel the constitutional effects of the poison; my respiration became irregular, and I felt giddy and faint, when my assistant removed my hand from the jar. All due care was taken to

considerable degree of irritation, for which he proposed to apply carbonic acid as a sedative. This was done by means of a pipe and tube, communicating with a gasometer situated in another room. The patient obtained immediate relief, and although she had been obliged to be carried to the doctor's house on account of the pain experienced in walking, she left it in perfect ease. On her return to England, she had a relapse of the complaint, and applied to Dr. Clutterbuck to know whether she could have the same remedy applied in London, in order to save her the necessity of returning to Italy."

* "The distinction which exists between the structure and functions even of the skin in the lower animals, as compared with the skin of the human subject, perhaps sufficiently explains the differences in the degree of local anæsthesia, capable of being produced by the local application of anæsthetic vapours and fluids in the one and in the other. 'In animals,' (says Dr. Jackson—see American Cyclopædia of Pract. Med. and Surgery, &c., vol. i. p. 115,) "whose skin is moist, and which possesses a very delicate cuticle, cutaneous absorption is a constant and important function. Such are frogs, salamanders, and similar animals. The experiments of Edwards have established the skin in them to be entirely absorbing, and instrumental in their support. It is the opinion of Fohmann, that while the fœtus is in utero, cutaneous absorption from the liquor amnios by which it is surrounded, is one of the means of its nutrition."

† "Perhaps some special modification in the application of galvanism or magnetism to the part to be locally anæsthetized, may yet be found capable of effecting this object. I have tried several experiments, but hitherto without much success. The possibility of deep *local* anæsthesia existing in diseased states, (as in colica pictonum, hysteria, hypochondriasis, &c.,) without the general sensibility or consciousness being affected, is well shown in a late interesting essay of M. Beau, in the 'Archives Générales de Médecine,' for January, 1848. He relates one case of an insane patient who broke his fibula, and continued to walk about without pain till the limb became inflamed and gangrenous. It was then amputated, and still without the patient suffering in any degree during the operation."

prevent me breathing any of the vapour, and I sat during the experiment in a current of air. I felt the benumbing influence of the acid extending from the hand upwards along the arm a minute or two before the experiment was stopped."

86. *Cold as a Means of producing Local Anæsthesia in Surgical Operations, and certain Painful Diseases.* By James Arnott, M. D., Brighton. (*Lancet*, Sept. 9th, 1848.)—Mr. Arnott points out some of the objections to the use of general anæsthetic agents; among others he says with the loss of consciousness, the patient "loses the power of guiding and aiding the surgeon under very important circumstances. He cannot, in this condition, prevent the surgeon's enclosing a nerve in the ligature which he places round an artery, or his seizing a fold of the bladder with the forceps, in searching for a stone. He cannot assume certain suitable postures at the bidding of the surgeon; and when convulsive movements are caused by the anæsthetic, (as is frequently the case,) the surgeon is obliged to proceed under great difficulties, or suspend the operation until the anæsthesia has passed away."

"Few," he continues, "I think, would now, as in the first burst of their admiration, be willing to rank etherization as the leading medical discovery of the age, and to pronounce it the equal of vaccination in importance."

"It must," he thinks, "be admitted that the problem, how to obviate pain without incurring danger, has not been solved by the discovery of etherization. It is undeniably attended with very considerable danger, both from its immediate or eventual effects on the system, and from the patient's loss of consciousness while under its influence."

The method which Mr. A. proposes of producing anæsthesia, "may not," he says, "perhaps be found so effectual as ether or chloroform in removing the whole of the sensibility; but if it should remove so much of this as to render surgical operations tolerable, and consequently less dreadful, and prevent that portion of hazard attending them which proceeds from excessive pain, without adding any new hazard of its own, it would be entitled to a preference."

The local anæsthetic agent which Mr. A. recommends is *cold.* "We have all," he says, "had experience of this anæsthetic, to a certain extent, in frosty weather; and its artificial production in no wise differs from this natural agency, except in degree and the power we have of controlling it. Every minor degree of cold has probably a proportionate effect in diminishing sensibility, but a certain low degree is requisite to render the anæsthesia complete. Fortunately, this is not below that point which may be applied with perfect safety—for, as every one knows, very low degrees of cold act as injuriously on the animal structure as very high degrees of heat.

"The degree and continuance of cold necessary to produce anæsthesia, will be in an inverse proportion to the heat of the part to which it is applied, or rather to its power of generating or transmitting heat. In the natural state, a temperature of the freezing point of the thermometer would in most cases be insufficient, unless of long continuance; but it would be otherwise if the circulation of blood in the part were very languid or obstructed. A temperature ranging between 5° and 25° Fahr. (which can be easily procured by the common frigorific mixture of pounded ice and salt), will produce complete anæsthesia of the skin in two or three minutes. The sudden application of this degree of cold causes a slight tingling or smarting, but not any very unpleasant sensation of cold. It will be proper, however, not to depend upon the period elapsed, but to examine the skin from time to time, in order that the refrigeration may not be carried to an unnecessary extent. A degree or continuance of cold that, under natural circumstances, and without pressure, would solidify the adipose secretion under the skin, will generally be found greater than is required, and ought not, therefore, to be produced. Whether the several tissues require different degrees of cold to produce anæsthesia of them respectively—whether a short continuance of severe cold is more or less anæsthetic and useful than a minor and more prolonged degree—and whether the application of more than one degree might not be advisable in producing deep or extensive anæsthesia, are points remaining to be determined; but any uncertainty about these need not impede the immediate substitution, in many cases, of this anæsthetic expedient for the present dangerous process.

"The anæsthesia of the skin, produced in the manner described, lasts for several minutes, and the only other consequence of the cold, is a slight and quickly evanescent blush.

"In my former paper I described the mode of applying the frigorific mixture by means of a thin, or prepared bladder. It may be applied directly to the skin by means of a common wine or beer glass, containing such a quantity of ice and salt in their dissolving state, as will insure a continuance of a sufficiently low temperature; but, in order that the skin may be examined from time to time, it is more convenient that the vessel containing the mixture should, like the shade or glass chimney of a lamp, be open at both ends; or that it should be made removable by having a bottom, consisting of thin membrane. Cold may be applied to the whole circumference of a limb, by dipping it into the mixture, after covering the part which is not to be refrigerated: or the limb may have a sort of funnel slipped upon it, of a size or depth proportional to the surface intended to be rendered insensible. Other contrivances, suitable for particular purposes, will be obvious to every surgeon; nor will a variety of means of combining pressure with the cold be of more difficult attainment.

"I am sorry that I cannot yet speak with certainty of the depth to which anæsthesia from cold can, when conjoined with pressure, be carried. The dissecting off a small portion of the skin without pain, (an operation which I have repeatedly performed, and which is by far the best mode of forming an issue,) shows that the anæsthesia of the skin, the most sensible of the animal tissues, is complete; and if the skin were deprived of its sensibility, there are few operations that would not lose half their terrors. It must not be forgotten, likewise, that in some operations there would, as in the unconsciousness attending general anæsthesia already adverted to, be a disadvantage in producing complete anæsthesia of all the tissues concerned. Is the safety of the patient to be hazarded in these cases, in order that he may be relieved from a slight and very tolerable degree of pain?

"Before concluding these remarks, I may mention that the surgeon would do well, before employing it in operations, to make himself familiar with the effect of cold, by applying it, in the manner described, to his own arm. He will thus best learn how to regulate the degree, and be immediately convinced of the essential difference that exists between such moderate and brief applications of cold, and those effects of it which happen from exposure of the body in high latitudes, or severe winters.

"With the same view, his first employment of it may be in the minor operations. A French writer mentions, that he does not hesitate to employ chloroform to obviate the pain that would be caused by cauterization, or the application of the moxa; and there are many other similar operations in which we should be glad to save our patients from suffering, if this could be done without hazard.

"In the same work which contained the original suggestion of cold as an anæsthetic in surgical operations, it was proposed to employ it as a remedy in neuralgia. The unequivocal advantage I have derived from its use in one case, corroborates the opinion I had formed, and induces me to think that its influence would be deeper, and its effects more permanent, than the action of aconite and the other narcotics. If a finger be kept immersed for a little while in a frigorific mixture, a deep-seated numbness will be produced, and will continue for many days afterwards.

"A degree of cold below the freezing point of water is, I believe, a new agent in therapeutics, which could, probably, be usefully employed for various other important purposes. A solution of salt, of a very low temperature, by acting on the exposed nerve, might at once, and permanently, remove toothache; and a frigorific mixture, contained in a bladder, or other waterproof case, would probably be a powerful means of checking hemorrhage in accessible internal parts, or during surgical operations. The same principle might also be usefully applied in the treatment of cutaneous, and other superficial diseases attended with distressing sensations. A minor degree of cold, when long and uniformly continued by means of the current apparatus, I have found an efficient remedy in many such cases; but lower degrees of cold, carefully applied, might, under certain circumstances, prove successful, when a higher temperature would fail."

87. *Local Application of Chloroform for the relief of Pain.*—An anonymous correspondent of the *London Medical Gazette* (Aug. 11, 1848), relates the following case. "An aged person, who had been suffering for ten or twelve days under very acute pain from internal suppuration and disorganization of the eye, with pus in the anterior chamber, (her age and circumstances prohibiting the employment of very active measures for subduing inflammatory action,) was most effectually relieved of pain by the vapour of chloroform applied directly to the eye by means of the common chimney glass of an Argand lamp. A small piece of rag being moistened with the fluid, it was placed in a saucer over a cup of warm water, and the vapour thus directed slowly to the eye; relief was almost immediately experienced, and after a very few applications she had no return of pain, comfortable sleep being also procured by the remedy."

88. *Disagreeable Effects from the Use of Anæsthetic Agents.*—Mr. Tomes, in his valuable course of lectures on Dental Physiology and Surgery (London, 1848), just published, relates a number of cases in which very unpleasant effects followed the use of anæsthetic agents.

He mentions the following case to enable the reader to judge "whether it is wise to use it [chloroform] on trivial occasions."

"Previous to the discovery of the anæsthetic effects of chloroform, Mr. J. Bell brought to the hospital a little chloric ether, or terchloride of carbon as it was then called, that its effects might be tested. A female patient from the venereal ward was brought by her nurse to have a tooth removed. She was speedily rendered apparently insensible by inhaling the chloric ether, and the tooth, a first permanent molar, was removed. She did not seem to feel the operation—there was no expression of pain. In a few minutes after the removal of the tooth, the patient regained her consciousness. She then said that the operation gave her great pain, and described it so accurately that no doubt remained that she felt the usual amount of pain; but the power to move, she said, was suspended; she could not move in the slightest degree any part of the body, so that the power to express pain was paralyzed. The ether was given in the morning; during the day she fainted several times, had headache, and felt altogether unwell, and was very angry at us for giving her the ether. She said that she had never fainted before, and that the ether had made her ill.

"As the disposition to faint was no doubt caused by the chloric ether, I did not again use this drug. Chloric ether consists of chloroform, with eighty per cent. of alcohol."

The following cases are also related by Mr. Tomes, illustrative of the ill effects sometimes following the administration of chloroform.

"The stomach," he says, "is sometimes deranged by chloroform. I have known of several cases in which distressing sickness was excited by the inhalation, and in one instance this lasted for twelve hours, and was compared by the patient to violent sea-sickness.

"During inhalation the patient sometimes struggles so violently, that it is only by force that the inhalation can be continued. Only a few weeks since I failed to produce suspension of the muscular power, though assisted by the medical attendant, so violently did the patient resist. Yet, on recovery, he was unconscious that he had resisted. In a second case, two gentlemen came with a patient, and with their assistance in holding him, I succeeded in removing two teeth. On recovery, he recollected neither the struggling, nor the extraction of the teeth.

"I have become acquainted with two cases in which the imagination was strangely affected for several weeks after the inhalation of chloroform. A lady between the age of thirty and forty suffered pain from several unsound teeth. Accompanied by a lady who had recently lost a little girl, and by her husband, she applied to a dentist. Chloroform was administered, and the tooth removed. She felt great difficulty and anxiety when inhaling, and wished to discontinue, but the dentist reassured her, and she went on. Her first sensation, on recovering, was the sound of her own voice, calling bitterly for the little girl who had recently died. This affected her very much, and she fell into a violent hysterical fit. On recovering she was conveyed home, but still bewildered, and at times hysterical. For three weeks she at frequent intervals heard her own voice calling for the little girl, and this was immediately succeeded by a fit of violent hysterical crying. Her friends became very anxious for her safety, both mentally and bodily, for she suffered in health, as well as from these occasional hallucinations. Any attempt to read or to write brought on a violent headache, and in addition to these evils her nights were, comparatively, sleepless. She eventually recovered by the use of tonics, stimulants, and generous living. This is her own account. Her friends state that under the operation she evinced no signs of pain; but that previous to the time, she recollects hearing her own voice, she had been calling for the child, had asked its mother to restore it to her, and expressed the most bitter feelings of regret at its loss.

"The lady has had a tooth out since, but not with the chloroform. She seems very much averse to its use, and says nothing would induce her to take it again.

"In the second case, the hallucination took a different form. The patient, a young lady, under thirty, required three teeth to be removed. Her ordinary dentist declined giving her chloroform, on the ground that it was dangerous in all cases, and that it was not necessary or right to give it in tooth-drawing, or any other trivial operation. Hence she sought a stranger who was less punctilious. She was soon rendered insensible, and three teeth were extracted during the time. On recovery she remembered the extraction of the three teeth, and described the operation correctly, and declared it was attended with great suffering; but she believed the pain to be imposed for sins she had committed; that in truth she had been in purgatory, and had suffered there, and had again to go, she said. At first her friends thought she was joking, but after a little time they discovered that, when unoccupied with external objects, the mind constantly fell back upon this idea. In addition to this, she was very nervous and excited, and in the evening asked to have some one to sleep in her room. This proved fortunate, for during the night she was attacked with a fit of collapse. Brandy was freely administered, and a medical man sent for, who with stimulants restored her. For a fortnight after the inhalation she continued very miserable, and subject to the frequent recurrence of these hallucinations. Her condition caused great alarm to her friends, who could not tell how long it might continue, and did not feel justified in leaving her for a moment alone while in that uncertain state of mind. In each of these cases, the patients were reported to be of highly nervous temperament, and subject, under great excitement, to hysterical crying.

"Mr. O. Clayton related to me a case in which catalepsy, with a tendency to coma, was induced by the inhalation of ether, and lasted for four days. The pupils were dilated, and the patient was insensible to all that was passing around her; but could be partially roused for a moment by loudly shouting in her ear. She took no food, and drank only when forced to do so. If the arm was raised, it retained the position for awhile, and then slowly fell back on the bed. There seemed great reason to fear a fatal termination.

"The patient was a servant-maid, and predisposed to slight attacks of hysteria. She required a tooth to be removed, and asked to take ether. She recovered from the more urgent symptoms under the use of stimulants, but did not regain her usual state of health. Neither has she done so at the present time, though many months have elapsed since she inhaled the ether.

"I am indebted for the following interesting case to the kindness of my friend Mr. Chalk, who obtained the details from Mr. Bird, of Haverstock Hill, in whose practice the case occurred. It appears that two ladies repaired to a dentist's, one to have teeth removed when under the influence of chloroform, the other, as companion to the patient. In giving the history, Mr. Bird uses the words of his patient and her friend, and his own in relating the treatment and its result. 'The patient says—"Wishing to have two teeth extracted, I applied to a highly respectable dentist, for permission, in the first instance, to see one of his patients inhale the chloroform, which he kindly allowed, and afterwards appointed the next day for the time of my own operation. I accordingly went, accompanied by a female friend, and took my seat in the operating chair; the process of inhalation was commenced. I distinctly recollect hearing the gentleman say 'she is now under its full influence;' and he commenced the extraction, when I gave as loud a scream as I did on any previous occasion of tooth-drawing—although I felt a very pleasant soothing sensation." The inhalation was repeated; and here I must let her friend speak:—"The second tooth, a stump, was then taken out without the least sign of pain; her countenance became ghastly, and my friend was in as complete a state of intoxication as could well be borne—almost pulseless—scarcely breathing, and I made up my mind she would die, and suggested the propriety of calling in medical assistance. The windows were all thrown open—brandy administered, and two bottles of eau-de-Cologne consumed in bathing the face." This state lasted three hours, when she was lifted into her carriage, and taken home, with directions to let her go to bed and remain quiet. This was about seven in the evening; she laid nearly all night in a restless half unconscious state, until five o'clock the next morning, when, reaction taking place, I was sent for, and found my patient in a high state of delirium—obliged to be held down in bed; leeches, blisters, &c., the usual mode of treatment, was adopted, and in four days she regained her senses. I am sorry to add that I sometimes find a vacancy in her manner, which leads me to forebode insanity sooner or later—a condition which I never observed previous to the inhalation, although I have been acquainted with my patient for ten years.'

"Mr. Isles, of St. Andrew's Court, Holborn, related to me the case of a female, in which the inhalation of an anæsthetic was followed by great nervous irritability, excitement, and sleeplessness, which was succeeded by an attack of phrenitis, from which the patient narrowly escaped with her life. Probably the dentist who gave her the vapour heard nothing of this."

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89. *Unpleasant Effects from Inhalation of Ether Vapour.*—Dr. H. J. BIGELOW states, (*Trans. Am. Med. Assoc.*, p. 209,) "A gentleman of Providence informed me that he has suffered for many months from *vertigo*, *headache*, and *disability for labour*, which ensued upon a dose of ether vapour."

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90. *Death by Hemorrhage from the Lungs after the Administration of Chloroform.*—Birkenhead, Saturday, March 12th.—12 P. M. Dr. Walker, Dr. Robertson, and Mr. Macdougall were hastily summoned to visit Dr. Anderson, at No. 11, Church street. Found the patient very anxious, with a jerky, bounding pulse of 115. Dyspnœa and blue lips. He had expectorated about six ounces of fluid blood, of a florid appearance, and frothy from admixture of air.

There was dulness on percussion over both sides anteriorly. Harsh, irregular crepitation heard extensively with the stethoscope in front, and a bubbling rhonchus over the position of the larger tubes, especially on the left side behind. The patient felt a sense of constriction about the chest, with a dull pain in the back.

He stated that he was seized with a very acute pain in the back (to use his own words, "as if his back were about to separate into two"), immediately before the hæmoptysis came on. He mentioned that, on the day before (Friday, the 10th), he had allowed a dentist in Birkenhead, named Wainwright, to administer the chloroform to him prior to extracting a molar tooth. The rest of that day (Friday) he had felt much excited, with a peculiar "rushing in the carotids."

The next day, Saturday, he felt rather languid, especially towards evening, when he was scarcely able to walk from debility, and a burning pain in the back of the chest. He took a cup of cocoa, his usual beverage, and retired to bed a little after eleven o'clock, when the hemorrhage commenced.

His frame was spare. His habits were very studious, sedentary, and abstemious. For some time previous to taking the chloroform, he had felt a weakness about his chest, which caused him frequently to sink forward in the chair whilst reading, so much so that the book would fall out of his hand. Had no cough, however, although he felt some uneasiness from what he considered to be "slight cold." He said he considered the chloroform the exciting cause of the hemorrhage.

The medical men at this time considered the hemorrhage to depend on general exhalation from the general surface of the air tubes as a natural relief to greatly congested lungs.

After consultation, it was resolved to bleed from the arm to eighteen ounces, and follow this immediately with a sedative dose of ten grains of calomel with three grains of henbane; and afterwards to give one-eighth of a grain of tartar emetic, and two grains of calomel, at intervals of three hours for three successive times, with a view to keep up the sedative effect, and to induce absorption of the blood effused into the air cells. Perfect quietude enjoined, with a diet of cold, thin gruel.

Further details of the treatment need not be given. On the 15th, Drs. Walker and Mr. Macdougall sent for in haste at half-past seven A. M. Hemorrhage returned to nearly three ounces, in one gush, and followed by fatal syncope. Heart ceased to beat at twenty minutes past eight A. M.—*Lancet*, July 22, 1848.

91. *Death during the Inhalation of Chloroform.*—M. Robert, surgeon to the "Hôpital Beaujon," reports the following case:—"A young man, twenty-one years of age, was admitted, on the 25th of June last, into the 'Hôpital Beaujon,' for a severe fracture of the shaft of the femur, caused by a ball which had traversed the limb from before backwards. Disarticulation of the thigh was decided upon. The patient was put under the influence of chloroform by means of the apparatus, divided by a spiroid diaphragm made of netting, and provided with a large mouthpiece; the nose was secured by an assistant. In three or four minutes there were a few convulsive movements pointing to the period of excitement, and soon after a complete state of relaxation came on. A large anterior flap was then made, beginning three fingers' breadth below the anterior superior spine of the ilium; hardly any blood was lost. The patient at this moment woke, and M. Robert desired that more chloroform should be given, and continued the operation. Hardly had a quarter of a minute elapsed, than a loud stertorous breathing was heard, and the apparatus was withdrawn. The patient's face was extremely pale, lips blanched, and the eyes, the pupils of which were greatly dilated, were drawn so high upwards as to be hidden by the upper lid. The operation was immediately suspended. The pulse at that time was hardly perceptible, all the limbs were in a state of complete relaxation, and the breathing was heard at long intervals. Frictions, irritation of the pituitary membrane, forced movements of the arms and of the ribs, were resorted to; several times the respiration seemed to become more vigorous, and the pulse more distinct, but this was but a momentary improvement, and it was but too apparent, after three-quarters of an hour of incessant efforts on the part of the persons present, that the patient had ceased to exist. The sudden paleness of the skin, the annihilation of the pulse, evidently pointed to syncope; and as the latter cannot be ascribed either to hemorrhage or a protracted operation, it must be concluded that syncope was the immediate result of the inhalations of chloroform; the more so, as none of the symptoms of the admission of air into the veins were present. The special kind of wound which the patient had received, as well as the stupor and shock consequent upon it, should, at the same time, be taken into consideration, besides the deep dejection and despair in which he was plunged."—*Lancet*, Aug. 5th, 1848.

92. *Death following the Inhalation of Chloroform.*—By M. Gorre, Surgeon-in-chief to the Hospital of Boulogne. (Communicated to the Academy of Med., July 4th, 1848.) Mlle. Stock, a young person thirty years of age, well formed, enjoyed habitually good health. I ought to state, however, that she had consulted me some months previously for palpitation, which appeared to me to depend on a chlorotic state, and on which preparations of iron had the happiest effect. Her health since then had experienced no change!

Some weeks since she was thrown out of a carriage, and besides some contusions, the result of the fall, she was wounded in the thigh by a splinter of wood, which made its way beneath the skin, without leaving any trace besides a very small laceration, and the presence of which was not then recognized. Her medical attendant applied some leeches over this point. Fluctuation being soon manifest, he proposed an incision, but the patient refused. Some days afterwards pus escaped in some quantity through a spontaneous opening, and as the suppuration did not cease, I was called to the case. I easily made her understand that a free incision was necessary for her complete recovery. She now consented, but on condition that I should put her under the influence of chloroform. I had no reason to refuse her request. I went next day with some chloroform, the good quality of which cannot be doubted, as it was supplied from the Chemical Laboratory of Quesneville.

I found my young patient in her usual good spirits, free from all fear; her usual medical attendant was present, and a midwife, to render assistance. Everything being ready for the operation, in itself very insignificant, I placed over the nostrils of the patient a handkerchief moistened with from fifteen to twenty *drops at the most* of chloroform.

Scarcely had she taken several inspirations, when she put her hand on the handkerchief to withdraw it, and cried with a plaintive voice, "I choke!" Immediately the face became pale; the countenance changed; the breathing embarrassed; and she foamed at the mouth. At the same instant (and that certainly *less than a minute* after the beginning of the inhalation), the handkerchief moistened with chloroform was withdrawn. But persuaded that the bad symptoms were only evanescent, and that it would suffice for the effect to cease to have suppressed the cause, I hastened to pass a director into the small fistulous wound in the thigh and to lay open the abscess in its whole extent—that is to say, between two and three inches, and I withdrew from the bottom of the wound a small, thin, and pointed splinter of wood. During the infinitely short time occupied by this little operation, my colleague sought by every means to remedy the threatening annihilation of life. I joined him, and both of us put into force with activity the measures most likely to prevent a fatal issue.

Frictions upon the temples and the precordial region, throwing cold water on the face, tickling the fauces with a feather, blowing air into the air-passages, ammonia to the nostrils, everything that it is possible to do in such a case, was tried by my colleague and myself, during more than two hours. We were willing to believe that there was only a suspension, not an abolition of the sensorial functions. It seemed impossible that the inhalation of so minute a quantity of the anæsthetic agent during so short a time, (not, indeed calculated by the watch, but certainly not more than a minute,) had been sufficient to extinguish life. Our efforts were vain!

This death, though we clung to the belief that it was but apparent, was real: and it had been so prompt, that already it was without doubt complete at the moment when I made the incision. I can only give a just idea of the lightning-like rapidity with which it was produced, by saying that it recalled to me most accurately death from the accidental introduction of air into the veins. The details of the very minute examination give value to this analogy, the idea of which struck me when observing the symptomatic expression of the last moments of life.

Autopsy 24 *hours after death.*—Exterior aspect. The right side of the face presents several large eschars, the skin being, as it were, parchment-like: these eschars are due to the ammoniacal frictions made to recall life. Complete ridigity of the limbs; cornea dull; abdomen distended with gas; a blood-stained bandage covers a wound at the internal superior part of the right thigh.

Head.—Scarcely any blood flows from the cutaneous incision. The superior longitudinal sinus is empty; the veins on the convex surface of the brain are not engorged, but they present this remarkable peculiarity, that the column of blood is broken every here and there by bubbles of gas. These veins when punctured collapse, owing to the escape of the gas. There is also air in the veins at the base of the skull. Numerous bullæ of air escaped with the blood from the ophthalmic veins, the cavernous sinuses, and the inferior cerebral veins. The lateral ventricles contain a moderate quantity of serum. The substance of the brain is firm; no drops of blood escape on cutting into it.

The air escapes, bubbling up in the midst of a remarkably black and very fluid blood, from the internal saphena and the left crural veins. The crural artery is entirely empty.

The right thigh presents, on the inner side of it, in the upper part and somewhat backwards, a wound made in opening an abscess. This wound, made through the skin and cellular tissue, is stained with black blood; the vena saphena is at a distance from the incision, and could not have been touched by the bistoury. The universal presence of air in the circulatory system called for a careful examination of the blood-vessels near the wound: dissected with the greatest care, they are found to be perfectly entire.

Chest.—The lungs, especially the left, are voluminous, and visibly engorged in the lower lobes. When cut into, a large quantity of very black fluid blood escapes.

Remarkable crepitation; pulmonary vesicles dilated by the air blown in during the last moments of life, with a view to reanimate the patient, supposed to be in a state of asphyxia. Neither interlobular nor sub-pleural emphysema; the tracheal mucous membrane is of a bright red; complete absence of froth in the bronchi; some amount of serum in the pleura and pericardium; heart excessively flaccid, of the usual size; right and left cavities absolutely empty. Not the smallest clot either in the auricle or between the fleshy columns of the ventricles; frothy blood in the orifice of the ascending cava. The pulmonary veins, opened near the auricle, allow a little blood to escape, mixed with air. The internal membrane of the heart, especially of the right cavities, is red. Its tissue is pale, and tears easily.

Abdomen.—Liver very voluminous, its colour like the lees of wine; on cutting into it, air bubbles out of the vessels along with much black and fluid blood; the intestines are distended by fetid gas. The spleen is softened, and is gorged with blood; on pressure, several bubbles of air escape from its substance.

In closing the account of this autopsy, I have particularly to notice that the blood was blacker than it is in simple asphyxia. *It was literally as black as ink.* The above post-mortem appearances lead me to the following conclusions, which I submit to the consideration of the Academy:—

Mlle. Stock did not properly, so to speak, die from asphyxia. According to all probability, her death was due to syncope caused by the sudden suspension of the cerebral functions under the influence of chloroform.

The presence of air in the venous system cannot be explained by the introduction of air into a vein imprudently opened when the incision was made in the thigh. The incision being altogether superficial and cutaneous, could not reach a vein of large size.

Nor yet was it the artificial respiration which caused the air to find its way into the circulation through the rupture of the pulmonary cells; for at the moment when the artificial respiration was resorted to, life was extinguished, if it had not been already abolished, and the action of the left side of the heart had ceased.

Thus, by shutting out other causes, one must admit, as the most probable view, the spontaneous formation of air in the veins. Was this fluid produced during life or after death?

Morgagni relates cases of sudden death, in which the autopsy revealed a large accumulation of air in the heart and great vessels, without any possible external origin. In these cases decomposition had not commenced, and no organic change accounted for the death. M. Ollivier (d'Angers) has related analogous examples, which led him to admit the possibility of the disengagement of a gaseous fluid during life, which kills after the same manner and with the same rapidity as if air had penetrated accidentally through the opening of a venous trunk contiguous to the heart.

I am consequently induced to think that the above case must be added to those singular cases of pneumatosis related by Méry, Littre, Morgagni, and among ourselves, M. Ollivier (d'Angers). In this case, it appears to me that the rapidity of the death is due to a complication of causes—namely, first, to the special deleterious influence of the chloroform upon the brain, which led, as the immediate consequence, to the abolition of the sensorial functions; and secondly, to the spontaneous development of gaseous fluid in the circulatory system, the probable result of the hitherto unexplained action of the ether upon the blood, under the cirstances related.

Whatever may be the value of this explanation, one thing is certain, resulting from the case just related, and from that reported in the Lancet, that the chloroform, in certain kinds of constitution, which it is absolutely impossible for the man of science to recognize, may cause death with a lightning-like rapidity. Even in experienced hands, there is no certain safeguard against the unfortunate consequences of this agent, which only too well justify the words applied by M. Flourens to chloroform, "*a marvelous and terrible agent.*" Finally, the dangers indicated by M. Bouisson of Montpellier, and Sedillot of Strasburg, are but too real, and in face of the dangers now so thoroughly realized, it would be the highest imprudence still to employ chloroform, as has been done hitherto, for insignificant operations—such as the drawing of teeth, opening an abscess, and the application of a moxa. In future, chloroform should only be exhibited for great operations. In fact, important advantages only can compensate for the risk incurred by the patient

—a risk necessarily incurred even in acting with extreme circumspection.—*Lond. Med. Gaz.*, Aug. 1848.

93. *Death from Chloroform in India.*—The following case occurred at Hyderabad, India, and is related in the words of the operating surgeon.

A young woman presented herself this morning with disease of the distal phalanx of the middle finger of the left hand, requiring amputation at the middle joint. As she appeared of timid disposition, and exhibited more than usual reluctance to submit to the little operation, I administered a drachm of chloroform in the usual way, namely, by sprinkling it on a pocket handkerchief and causing her to inhale the vapour. She coughed a little, and then gave a few convulsive movements. When these subsided, I performed the necessary incisions, which, of course, did not occupy more than a few seconds. Scarcely a drop of blood escaped. The patient was then put into the recumbent posture with the head low. Active means were taken to bring her out of the state of coma, into which she had apparently fallen. But although these means, including artificial respiration, were perseveringly employed for five hours, the *unfortunate woman never breathed again.* I am inclined to think that death was almost instantaneous; for after the convulsive movement above described, she never moved, nor exhibited the smallest sign of life. No opportunity was afforded me of making a post-mortem examination; so that it must forever remain a secret whether or not there were any special circumstances, such as aneurism of one of the great vessels, or disease of the heart."

[The chloroform was supplied by Messrs. Twemlow and Co., Bombay. It required a drachm and a half of the same chloroform in another case to produce a slight effect.]—*Lond. Med. Gaz.*, July 14, 1848.

94. *Fatal Effects from Chloroform.*—Mr. R. O. Johnston states (*Prov. Med. & Surg. Journ.*, July 26th), that he has "seen two deaths from chloroform; one man was in convulsions for forty-eight hours after the operation and afterwards expired."

95. *Death from Inhalation of Chloroform.*—The case which seems to have made most impression upon the public mind, is that of Samuel Badger, Esq., Solicitor of Rotherham, Yorkshire. It appears from the evidence given before the inquest, that this gentleman applied to Mr. Robinson, one of the most skillful dentists in London, and who has had the most extensive experience in the administration of anæsthetic agents, (he stated in his evidence that he had administered anæsthetic agents in at least three thousand cases,) to have some teeth extracted. Mr. Robinson put only a drachm and a half on the sponge of the inhaler. The instrument was not held close to the mouth or face—the deceased had not inhaled it more than a minute, when it appeared to have produced so slight an effect, that he requested to have the vapour made stronger. Before this could be done, however, the head and hand of the deceased dropped—*i. e.*, in one second after he had spoken to the operator. A period of about *five minutes* elapsed from the time at which the deceased entered the surgery to his death. When seen by Dr. Waters, who had been sent for, immediately afterwards, the face was livid, the pupils dilated, and the temperature of the body lower than natural. The following were the post-mortem appearances:

"The body was well formed and muscular; the neck plethoric and rather short; countenance of a bluish livid appearance; eyes [pupils?] dilated, particularly the left; chest well formed, but generally dull all over on percussion, particularly the right side; parietes less resonant over the heart's region than in the natural state. Abdomen prominent, from a deposition of fat; dullness on percussion, extending into the right iliac region; lower extremities not œdematous. On dividing the scalp there was observed some turgescence of the vessels. The membranes presented a congested appearance all over the cerebral mass; there was nothing abnormal in the cerebrum, nor any effusion into either ventricle; the surfaces of the corpora striata and optic thalami were slightly congested; the cerebellum and pons Varolii offered nothing remarkable. On raising the sternum, observation was made of the very small diameter to which the chest was reduced, for it was found that the lungs and heart were pushed upwards to a line extending between the third and fourth ribs; the lungs were healthy and crepitant throughout their entire extent; there were some adhesions on the right side, of long standing, but no marked congestion.* On dividing the pericardium, no undue effusion of serous fluid was found. The heart looked of a paler colour than usual, and was flaccid, but was not in a hypertrophied or dilated condition; some spots of adipose matter were observed here and there on its surface. On dividing the left ventricle, its walls were found thinner than natural, and its tissue was interspersed with 'fatty' degenerescence; this morbid state was particularly observable at the apex, where the muscular tissue only measured about two lines, and the abnormal deposition was very evident at this point; the right ventricle and septum offered nothing remarkable but the lesion of secretion already observed; both ventricles contained clots of dark grumous blood. The inner surface of the aorta felt rather rough, and the mitral valves were unequal at their edges, with some slight rugosity; on dividing their base. the tissue was hard, and made a grating noise under the scalpel. Abdomen: The omentum was loaded with fat; stomach not distended by gases; liver preternaturally enlarged, and extending upwards in a line between the third and fourth ribs; it was of a pale brownish colour, and in some parts almost approaching to a dirty white; this was particularly observable in the Spigelian lobe, where the fatty degenerescence was very evident; there appeared to be no other change of structure. It weighed *eight pounds*. The other organs of the abdomen were healthy."

The editor of the *London Medical Gazette*, in commenting on this case, remarks: "The unfortunate case of Mr. Badger is sufficient to show that even they who are most experienced in the use of this agent, are not always able to discriminate those cases in which the inhalation of the vapour is likely to be attended with fatal effects. The deceased was a healthy muscular young man, who, according to the testimony of his father, had suffered from no difficulty of breathing, or any other apparent disease. The inspection of the body, however, revealed a diseased state of the heart and liver, although not sufficient to account for sudden death. Hence we arrive at the conclusion that a young and healthy-looking person, whose appearance and previous habits of life would create no suspicion of the existence of latent organic disease, may still be in such a condition of body that the respiration of the vapour will operate upon him like a fatal poison. It is not here as with a liquid or solid taken into the stomach—the poison enters at once into the circulation, and penetrates through the whole of the system; and but a few minutes elapse between apparently perfect health and the death of the patient. The circumstances under which the poison is administered, do not, in these unfavourable cases, admit of the application of any remedy. The attempt to abstract blood has uniformly failed. Art is powerless in dealing with the poisonous effects of this vapour. It may be said, and we doubt not the truth of the statement, that hundreds, nay, thousands of persons, young and healthy-looking like the deceased, have inhaled this vapour without any such disastrous effects following. We have, however, heard of some very narrow escapes, even where precaution and skill of the best kind had been employed in its administration; and doubtless the experience of many of our readers will furnish them with cases corroborative of this remark. But the death of only one person in a thousand, when the vapour has been skillfully administered—and there was nothing in the patient's aspect or account of himself to induce the operator to withhold his consent to its employment—becomes a most serious matter. There should be some extraordinary advantage or benefit to the individual to justify such a fearful risk; but the advantage, if any, in reference to the dental art, is the alleviation of pain merely for a few minutes; and the naked question now to be considered is, will any operator feel himself justified, after the case of Mr. Badger, in employing this dangerous vapour for the annulling of pain in the extraction of teeth? If latent disease of the heart or liver could always be clearly diagnosed in a patient, we should not be called upon to put this question: but as Mr. Badger's case proves that a most experienced man like Mr. Robinson saw nothing about the deceased to justify his refusal to employ chloroform, it is clear that the most skillful dentist may be working in the dark, and thus unconsciously be the means of sacrificing life for the sake of humouring a patient by annulling a degree of pain which every healthy adult should be able to bear. The facts of this case have, however, a bearing far beyond dentistry. We consider that our remarks apply to all the minor operations of surgery."—*Lond. Med. Gaz.*, July 14, 1848.

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* In his evidence at the inquest, Dr. Waters stated that the lungs presented a little sign of congestion.

96. *Anæsthesia in Ophthalmic Practice.*—We have, in a previous article, (see Art. 57, p. 476,) quoted the observations of Mr. WILDE on this subject, which appear to be so just, that we need add nothing here further in relation to it.

97. *Use of Anæsthetic Agents in Dental Operations.*—Mr. TOMES, in his scientific and highly valuable lectures on Dental Physiology and Surgery,* in speaking of the superinduction of anæsthesia in dental operations by ether, observes:—"At first the reports were all in favour of the new agent, but as time passed on, and the cases multiplied, we heard, at intervals, of unfavourable conditions produced by the inhalation of ether. The effects were more lasting than the operation required: and, in one or two instances, the patients died without ever having fully recovered from the effects of the anæsthetic agent."

Further, he states that, "Ether is now but rarely used, and if it were employed, there is, I think, sufficient evidence in Dr. Warren's work, and in the various papers that have from time to time appeared in the medical periodicals, to necessitate the conclusion that its use should be discontinued in ordinary cases of extraction of teeth, and that it should be employed only in serious operations in which there is great and prolonged pain."

Mr. Tomes, in the work from which we have just quoted, offers the following just views relative to the employment of anæsthetic agents in dental operations.

"I have brought before you," he observes, "the untoward results that occasionally follow the inhalation of chloroform, not with the view of prejudicing you against its use in proper cases, but to guard you against using it needlessly—that you may properly proportion the risk to the advantage. So far as we know, not one in five, or perhaps ten thousand, would be killed by chloroform, if it be cautiously administered. But, supposing even one in ten thousand will be killed, and we cannot tell which that one will be, it is surely unwise to take even that risk, merely to avoid pain that is very bearable, and will not last more than three or four seconds. We surely use a great power to overcome a very trifling difficulty, when we give chloroform preparatory to extracting an ordinary tooth.

"The remedy in my mind seems strangely out of proportion to the evil to be avoided."

"Then again, if the mind is to be disturbed for a week or fortnight (and these cases are not so uncommon), is it well to take that chance merely to avoid a transient pain?

"Distressing nausea for a day would be, to me, a far greater evil than the pain occasioned by the extraction of an ordinary tooth. I say an ordinary tooth, because sometimes there is inflammation of the gums, or a peculiar shape or position of a tooth, or other complication, that makes the operation unusually painful.

"If such complications exist, or if several teeth have to be removed at the same time, then, the pain being greater, we are, perhaps, warranted in using a powerful antidote.

"With some states of the system it is deemed dangerous to exhibit chloroform, however desirable the immunity from pain may be.

"Supposing we decide upon narcotizing a patient before removing a tooth, it becomes a question how far the narcotism should be carried—whether we should strive to get perfect immunity from pain, or whether we should be content with lessening its degree; and what should be our treatment of the patient during, and after, the narcotism.

"To arrive at a satisfactory conclusion, requires that we should consider the manner in which the phenomena that indicate narcotism succeed each other.

"The order in which the various vital powers are suspended is not always the same. Thus, in one case, it is seen that the patient retains the power to see, hear and feel, so as to recognize contact, while he is unable to feel pain; when in another, the senses are paralyzed, but the knife excites cries, and efforts to resist. Then again, in a third case, the senses and the voluntary muscular system are equally narcotized. But whichever of the three conditions is present, the patient after recovery, is equally oblivious as to what has been done during the time he was under the influence of the chloroform.

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* A course of Lectures on Dental Physiology and Surgery, delivered at the Middlesex Hospital School of Medicine. By John Tomes, Surgeon Dentist. London, 1848.

"I believe it is generally agreed by those who are conversant with the exhibition of chloroform, that when the pupil dilates, and the eyelid falls involuntarily, then an operation may be commenced; and that a higher degree of narcotism is unnecessary. Now this is, I think, going farther than is needful to insure immunity from pain in an operation like tooth-drawing. I have found it sufficient to gain partial insensibility. On many occasions the patient has been perfectly aware of the steps of the operation, has felt the instrument grasp the tooth, and then a dragging, and yet little or no pain. If you direct a patient to tell you when he feels himself going off, and at that moment extract the tooth, he will feel little or no pain. I have adopted this plan when necessitated to exhibit chloroform, under the belief that the less the degree of narcotization the less will be the risk of injury to the patient.

"I prefer the minimum dose of chloroform in dental practice on another ground.

"When serious operations are performed, and a large amount of chloroform is given to gain immunity from pain, and save the patient from the shock to the system that would otherwise result from the operation, the patient is carried to bed and is kept perfectly quiet, and possibly sleeps till the effect of the narcotic has gone off. Not so in dental practice. The patient inhales the vapour, falls into a state of insensibility, the tooth is taken out, and, so soon as he recovers sufficiently, returns home. The case, so far as the dentist is concerned, terminates here; we hear no more of the patient. But, unfortunately, there are many instances in which the medical attendant does. His case begins where the dentist's ends. The patient is attacked with headache, with sleeplessness, or sickness, or collapse, or some other indication of indisposition.

"The narcotism ordinarily induced by dentists, previous to extracting teeth, is certainly less in degree, and less prolonged than that produced when serious operations are performed. Yet I believe that the results are more mischievous. I cannot see why this should be the case, unless it is that with the dentist the patient is roused up, and required to use the mind before it has fully regained its proper condition; and that the use, when only partially recovered, is productive of injury.

"On this ground, I think it is desirable that, in dental operations, the minimum amount of chloroform that will insure anæsthesia should be used; and further, that the dentist should not use it at all unless the case be such as to necessitate it."

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98. *Chloroform in Midwifery.*—Prof. Murphy gives the following conclusions as the result of his experience of the action of chloroform in labour.

1st. It does not interfere with the action of the uterus, unless it be given in very large doses, which is never necessary.

2d. It causes a greater relaxation in the passages and perineum; the mucous secretion from the vagina is also increased.

3d. It subdues the nervous irritation caused by severe pain, and restores nervous energy.

4th. It secures the patient perfect repose for some hours after her delivery. These three last effects consequently render an operation much easier to perform and the recovery of the patient afterwards much more favourable.

5th. The order of its effects on the vital functions seems to be, loss of sensation, partial loss of voluntary motion, loss of consciousness, complete loss of voluntary motion, stertorous respiration, loss of involuntary motion, cessation of the action of the uterus, of respiration, of the action of the heart.

6th. Its injurious effects, when an ordinary dose is given, seem to depend upon constitutional peculiarities, or on improper management. Much excitement about the patient may render her violent. Catalepsy has occurred in some; clonic contractions in others. Some patients are slow in recovering from the effects of a large dose; they remain giddy during the day, and sometimes faint when they stand upright.—*Chloroform in the Practice of Midwifery.* By E. W. Murphy, M. D. London, 1848.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

On a Physical Sign of Pneumonia of the Apex of the Lung. By Wm. Boling, M.D.

Isaac Hays, M.D., &c. *Montgomery, Ala., Aug.* 11*th*, 1848.

Dear Sir—Will you please to make room in your Journal for the following attempt to explain a paragraph which appears in a brief article in the *American Journal of Medical Sciences* for July, 1847, under the caption, "*A Physical Sign of Pneumonia of the Apex of the Lungs;*" and which seems to have been construed by the author of the report submitted to the National Medical Association, on American medical literature, in a sense different from that intended?

It is remarked in the report, in reference to the physical sign alluded to, that "the committee can affirm at least, that it is not constant." In the paper *six* cases of pneumonia commencing in the apex of the lungs, are spoken of, in only *three* of which is it stated that the sign was present. There is, then, no difference of opinion between the author of the report and myself, on this point.

It is also stated in the report, that,

"It was extraordinary if, as Dr. Boling asserts, the chest remained still resonant on percussion over the apex of the lung in a state of hepatization."

If I have said this, I really did not intend to do so. Here is what I did say—speaking at the time in reference to the *three* cases in which the peculiar sign described in the paper was *not* present.

"In the other cases the lung run most rapidly into a state of hepatization; the solidification not being preceded by the crepitant rhonchus, but by a total absence of the respiratory murmur, while the chest over the affected part remained still resonant on percussion."

I cannot see how the latter clause of the above sentence can be understood to have reference to the sound yielded on percussion *after* hepatization had supervened. On the contrary, it seems, and is intended at least, to have reference to the phenomena that *preceded* the hepatization or *solidification* of the organ. No one certainly can suppose that the words hepatization and *solidification*, as used in the sentence, refer to different conditions of the part affected. I did not, I repeat, mean to say—as it is asserted in the report that I did say,—that "the chest remained still resonant on percussion over the apex of the lung in a state of hepatization,"—but that, in the *particular cases* alluded to, during the stage *preceding* that of hepatization or solidification—the chest remaining still resonant on percussion—there could be heard neither a crepitant rhonchus nor the respiratory murmur.

I fear, however, that I have been unable to express my meaning more plainly than it appears in the sentence which I have here striven to elucidate; but, as I have not been understood, and as there may possibly exist others who may place the same construction on the sentence in question that the author of the report has placed upon it, I deem it but proper that I should, at least, attempt an explanation.

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Cases of Neuralgia. By ALBERT T. WHEELOCK, M. D., Belfast, Maine. —The following case of neuralgia had been of four months' standing. The patient was a very intelligent female of the nervous temperament, delicate constitution, aged about twenty-three, had been married about two years, and had one child, which was healthy. The pain was paroxysmal, of a very severe kind, seated in the jaws and side of the face, recurring every day; but at no regular time during the day, sometimes coming on in the forenoon, sometimes in the afternoon, but rarely in the night. It had immediately followed the extraction of the second molar tooth in the lower jaw. The pains were of the most acute kind, lasting several minutes, so overcoming the patient that she would lose control of herself entirely. The disease was evidently affecting her general health; she became emaciated, and her features, which were regular and extremely beautiful, were becoming altered by the effects of it on the whole nervous system. The disease was in its full severity and apparently growing worse when she was put under medical treatment. She was now ordered a simple emetic of ipecacuanha, to be continued every day for ten days, to be taken every morning about ten o'clock, after a breakfast at seven of bread and butter only, without tea or coffee. The remainder of the day the meals were to be of the usual mixed diet, with the exception of tea and coffee. A teaspoonful of a mixture of equal parts of tincture of opium and alcohol was taken in a third of a tumblerful of water thickly sweetened with sugar, as soon as vomiting had ceased, and the same again about two hours after tea time. On the third and seventh days of the ten days, during which emetics were given, a large blister was applied over the spine between the shoulders. There was not any return of the pain after the treatment was commenced or after the first emetic. And although some months have elapsed, there has been no return of the disease. The bowels were somewhat costive during the treatment, but no cathartics were given, this circumstance being intentionally and entirely unattended to. The emetics vomited generally three and four times each.

December, 1847. Mrs. G., case of neuralgia of eight years' standing; age of patient thirty-five—no children. She had tried various remedies, such as blistering, tonics, division of the part of the facial nerve that seemed to be the seat of the trouble. The complaint was relieved at times under this treatment, apparently but not certainly so, as there had always been since the supervention of the disease, intervals of several weeks of entire freedom from it, when it would again recur daily. The pain was of the severest kind, disabling the patient from her usual domestic employment. The paroxysms generally lasted a considerable part of the day; these usually came on at periods of from one, two, or three days, to several weeks. She always felt the premonitory symptom of a kind of fullness about the head sometimes for twenty-four hours previous to the paroxysm. She called the complaint the nervous headache. It had remained about the same for several years without much treatment of any kind; when she was placed under my direction. She was ordered an emetic daily, to live on a vegetable diet, and to take after the vomiting and also at bed time a tablespoonful of a mixture of equal parts of tinct. opii, alcohol, mucilage gum acacia, and simple syrup. This treatment was pursued for fourteen days; it evidently broke up the paroxysms for the time, but a cure was not effected. Owing to the discouragement of the patient, no other course of remedial measures was undertaken.

June, 1846. The following case had been one of some months' duration. The patient was a delicate female, of a pure healthy constitution, with much activity of mind and body; aged about twenty-six; had been married five years; no children. The pain came on usually about noon, of a severe kind, running up the side of the face, over the eyebrow, and to the nose. There never was more than one paroxysm in a day. She had been taking some of the vegetable tonics, with nourishing food and wine. She was now ordered an emetic of ipecac. every other day, to live on vegetable food, without tea or coffee. This was to be continued till she had taken eight emetics. The emetics were to be taken every morning two hours after a light breakfast, and at noon of each day two drachms of the following: ℞.—Tinct. opii, alcohol, mucilage gum acacia, āā ℥ij. During the term of the time that emetics were taken, three blisters were applied to the spine between the shoulders at intervals of five days. She was of so unusual a delicate habit for this region of country, although apparently of perfect constitution and natural health, that we were obliged to suspend the emetics once or, twice, as she was too severely prostrated to continue them rigorously. She has had no return of the disease since she commenced with the first emetic a, period now of two years. Owing to the confined state of the bowels from the use of the opiate, she took a Rochelle powder two or three times during the treatment. From the preceding accounts it would seem, that in the cases of short standing, we succeeded in breaking the chain of morbid action by a vigorous and systematic course of treatment.

Case of Enlarged Heart in an Infant. By M. R. Trevor, M. D., of Alleghany city.

The child, the subject of the following remarks, was born on the 29th Feb. 1848, apparently healthy. Parents healthy, but with a hereditary scrofulous taint on the mother's side: all of her father's brothers and sisters having died of phthisis pulmonalis, and her father is at present strongly predisposed that way. On the 16th May, I was called in to see the child (then two and a half months old), on account of a *diminution* of the *cry;* no other symptom being observed, no treatment was adopted. On the 16th of June following, was called again to see the child on account of violent illness, which had commenced on the evening before. Parents state that since the 16th of May the child had continued well, except the diminished ability to cry, and a slight cough. Slept well in any position; nursed freely, and continued to grow strong and plump. *Symptoms*—commencing on the evening of the 15th and continuing till the evening of the 16th, when the case terminated:—Great difficulty of breathing, severe pain indicated by a suppressed cry with each expiration, most laborious and violent action of all the muscles of respiration; the diaphragm agitated more forcibly than in the severest hiccough; surface pale and cold; pulse could not be distinguished on account of the extreme restlessness; head thrown back, pupils contracted; general expression of eyes dull. *Auscultation.*—Respiration puerile, *loud* and *strong*, and even above this could be distinctly heard a bellows-sound accompanying each systole of the heart. There was no cessation or remission of these violent symptoms for nearly twenty-four hours, when the case terminated by exhaustion; child three and a half months old. *Post-mortem appearances.*—The left side of the chest slightly elevated above the right. On opening the chest (with the assistance of Dr. T. H. Elliot, who had seen the case before death), we found the heart enormously enlarged. Hypertrophy with dilatation principally of the left side: the heart occupying nearly all of the left, and at least one-third of the right side of the chest. Walls of the left ventricle six lines thick. Largest circumference of heart circularly, eight inches six lines, largest circumference longitudinally eight inches five lines; valves healthy. Pericardium contained f℥i of serum. Left lung atrophied, occupying but a small space in the posterior part of the left side; middle lobe of right lung very much encroached upon by the heart. Substance of lungs healthy. Weight of heart not ascertained. Pericardium not adhering in any part. *Queries.* Was the disease congenital? If not, what could have produced it at so early an age? Why were there no other symptoms or disturbances of circulation and respiration until twenty-four hours before death?

DOMESTIC SUMMARY.

Typhus and Typhoid Fevers.—By Joseph M. Smith. M. D., Prof. of Pract. Med. in Coll. Phys. and Surg., Chairman of Committee on Pract. Med. A. M. A.

Of all forms of infectious diseases, the one from which the greatest amount of mortality has occurred in most of the larger Atlantic cities of the North-eastern and Middle States, during the committee's term of service, is typhus, or, as it has been generally called, ship fever.

Though typhus is not perhaps as strictly entitled to the term epidemic as some other distempers, being never equally rife in the different classes of society, but mostly confined to persons dwelling in confined situations, in the midst of human filth, yet its prevalence is sometimes so extensive, and its diffusion so clearly owing to the agency of a peculiar atmospheric influence, that there is no sufficient reason for not considering it as occurring epidemically. That it conforms to the law of periodicity, which determines the recurrence and spread of certain other maladies, is shown by its history in various countries. Pursuant to that law, though it may never be absent from a city or district, it increases at times, and after raging for a season, declines like other epidemics. Dr. Alison says, in speaking of the contagious fever of Edinburgh, that "there have been three great epidemics of that disease in the last twenty-two years, beginning in 1817, 1826, and 1836, (the last of which has now nearly subsided,) each lasting nearly three years, and each of the last two affecting, he believes, nearly ten thousand persons."[*] Of the typhus of Glasgow, Dr. Davidson remarks "that a severe epidemic of one or two years' duration is never succeeded by another until several years have elapsed."[†] Similar facts illustrate the epidemic character of typhus in other European cities.

On examining the records of deaths from typhus[‡] for the last thirty-five years in the city of New York, it is found that the disease was epidemic in that period four times, viz: in 1818, 1827–28, 1837, and 1846–47. In these years the increase of the disease was so remarkable, that there is no hesitation in pronouncing them epidemic typhus periods. The fact now referred to was strikingly exemplified in 1837. In that year the mortality from typhus was 338, while that of the preceding year was but 117, and that of the following only 104. From this time, though the amount of mortality annually varied, there was no notable increase of deaths from typhus until 1846, when the number rose to 256; and the disease continuing to prevail and with increasing severity, the deaths in 1847 reached the frightful sum of 1396, to which should be added very many of 657 deaths from dysentery, a disease which, in a large proportion of the cases in the hospitals, was typhus fever.

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[*] British and Foreign Medical Review, No. xxi. p. 27.

[†] Thackeray, Prize Essay, p. 55.

[‡] In enumerating the deaths from typhus, we include the deaths from what is called in the bills of mortality *typhoid fever.*

The foregoing facts fully warrant the inference that the diffusion of typhus is favoured by a peculiar aerial influence which occurs periodically. Such an influence is sometimes very widely extended. It is said by Barker and Cheyne, in speaking of the epidemic typhus period of 1817–18, as quoted by Dr. Davidson,* that "it must be acknowledged that the simultaneous increase of the disease in Ireland, and on the Continent, leads to the inference, that whatever may have been its origin, an epidemic constitution prevailed over a great part of Europe during a series of years past." Now such an epidemic constitution has manifestly prevailed over the British Isles during the years 1846–47; and its influence, in its western direction, appears to have extended across the Atlantic ocean to the shores of our North-eastern States and the adjacent British Provinces.

But coincident with this wide-spread epidemic meteoration, were other causes more immediately influential in predisposing to typhus on both sides of the Atlantic. The more efficient of these causes, especially in Ireland, were famine and the evils, physical and moral, attendant upon it. Whilst starvation and disease were destroying thousands of the poor in that ill-fated land, multitudes of them, to escape from calamities so fearful, sought to ameliorate their condition by a removal to this continent. In no annual period in the history of emigration, has the number of foreigners, added to our population, equaled that of the last year. It has been estimated that about a quarter of a million of emigrants arrived in the United States in 1847.† Of this number, 160.134 landed at New York, and the remainder mostly at Boston, Philadelphia, Baltimore, and New Orleans. Thousands also entered our country by the way of Canada and New Brunswick. A very large majority of those who landed at New York were Germans and Irish. It is stated by the New York Commissioners of emigration, that of the 129,062 passengers arrived at that port, from May 5th to December 31st, 1847, 53,180 were from Germany, and 52,946 from Ireland, thus showing that the emigration from the former country exceeded that from the latter.

The condition of the German and Irish emigrants prior to their embarkation, and during their transit of the ocean, was in most instances conspicuously different. Whilst the former were generally robust, and well provided on the passage with the means of subsistence, and observant of cleanliness and ventilation,—the latter were in most cases enfeebled from the want of sustenance, and on shipboard, destitute of supplies of wholesome food, depressed in mind, clothed in filthy garments, and crowded and confined in air rendered pestiferous by the excrementitious matters eliminated from their own bodies. In contrasting the hygienic circumstances in which the two classes of emigrants were placed, it is easy to account for the greater amount of sickness and mortality which occurred in one class than in the other. It is said, that of the admissions of emigrants into the hospitals and almshouse of New York, the Irish exceeded the German in the proportion of about one to nine or ten; and we are told, that the Irish in British ships suffered more than those in American.

The amount of disease and number of deaths which occurred in emigrant ships, while crossing the Atlantic, are appalling to contemplate. Many thousands perished on the voyage to the United States and Canada. In some ships bound to New York, from 20 to 30 died on the passage; and in many vessels destined to Canada, the deaths were from 30 to upwards of 100. From one ship, the Virginia, bound from Liverpool to Quebec, with 470 passengers, 158 of the number were buried at sea.

The Montreal Immigrant Committee, in their report for 1847, state, that "in no year since the conquest has Canada presented such fearful scenes of destitution and suffering." "The year 1847 has been unparalleled for the amount of immigration to Canada: near 100,000 souls have left the British isles for these provinces the past year,—over 5,000 of these died on their passage out, 3,389 at Grosse Isle,

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* Thackeray, Prize Essay.

† It appears from the report of the Secretary of State to the House of Representatives, that the whole number of passengers who arrived in the United States during the year ending Sept. 30th, 1847, was 239,480.

1,137 at Quebec, 3,862 at Montreal, 130 at Lachine, and 39 at St. Johns, making in all at these several places 13,815. How many have died in other sections in Canada East cannot now be known, nor, indeed, how many have perished in Canada West; but coupling all those who have perished with those who have passed into the United States, Canada cannot now number 50,000 souls of the 90 odd thousands which landed upon our shores." In sketching a retrospect of these terrific scenes, the Montreal committee forcibly remark—"From Grosse Isle, the great charnel house for victimized humanity, up to Port Sarnia—along the borders of our magnificent river, upon the shores of Lakes Ontario and Erie, and wherever the tide of immigration has extended, are to be found the final resting-places of the sons and daughters of Erin—one unbroken chain of graves, where repose fathers and mothers, sisters and brothers, in one commingled heap, without a tear bedewing the soil, or stone to mark the spot. Twenty thousand and upward have gone to their graves, and the whole appears, to one not immediately interested, 'like a tale that is told.'"

The disease of which the emigrant passengers, and in many instances, the officers and crews of ships, perished at sea, and of which a great number were ill on their arrival in the United States and Canada, was typhus in its genuine form. In some ships dysentery, small-pox and measles swelled the amount of mortality, and added to the number of sick that reached the ports of destination. From some ships upwards of 100 ill were landed at the New York quarantine station; and so great was the influx of sick and destitute emigrants, during the summer of the last year, that the public and private hospitals and almshouse were filled to overflowing, and sheds and tents were erected for their accommodation. In stating these things we cannot withhold the grateful remark that, in providing these accommodations, and furnishing other means of comfort, the same spirit of benevolence was manifested, which animated our countrymen in sending ships laden with supplies of food to the famishing in Ireland.

The number of persons admitted into the marine hospital at Staten Island, in the year 1847, was 6,932. Of this number, 5,277 were sick with fever, and 662 died. In that hospital, 2,229 cases were registered as typhus fever, of which 457 died, and 3,020 as remittent and typhus remittent fever, of which 205 died. There is reason to believe that many of these latter cases, landed from emigrant ships, were typhus; but excluding these, the total number of deaths from typhus at the quarantine hospital and within the city of New York, was scarcely less than 2,000.

But besides those admitted into the hospitals immediately after their arrival, or who sickened in the city and were sent to the hospitals, there were many who became victims of the disease at places, more or less distant, in the countries over which they were dispersed.

The effect of introducing so great a multitude of persons affected with typhus, or imbued with the *fomes* of the disease, into the midst of the resident population, could not be otherwise than to excite alarm, and, in fact, to extend the disease. Wherever the emigrant sick were congregated in masses, or collected in small numbers, or wherever individual cases were confined in small, unclean, and ill-ventilated apartments, the disease frequently attacked those who were in constant or occasional communication with them. From such communications nurses, physicians, friends, and transient visitors to the sick, have suffered in numerous instances. Of the medical officers in the New York and neighbouring hospitals and almshouses, not less than eight, mostly in the vigour of early manhood, and while engaged in active duties, giving promise of future distinction in the ranks of the profession, have, during the epidemic, been numbered with the dead.*

But though the disease amongst residents has, in most instances, been traceable to exposure to the poison emanating from the persons and effects of emigrants, there is reason to believe that it has, in some instances, originated *de novo* in the close and sordid dwellings of the poor in our large sea-port towns; and that the mortality from the disease has been augmented from such sources. This statement derives support from the circumstance, that the diseases prevalent in our northern Atlantic cities for the last two or three years, and especially in New York, have manifested a decided adynamic diathesis, a circumstance indicating, it is believed, the existence of a meteoratious influence, which not only develops a predisposition to typhus, but favours the production of the poison of the disease.

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* Dr. Harrison states that, "with regard to the ship fever at New Orleans, it has not been complicated with or modified in any way by the yellow fever. It has been entirely confined to the hospitals, no persons that I have heard of being attacked out of doors. Several of the visiting physicians, Sisters of Charity, students, and others of the Charity Hospital, have been attacked, and some have died; but the disease has been confined to the cases I have now mentioned."

As to the mode in which the late typhus, or ship fever, has been propagated, the committee are not disposed to enter into an elaborate disquisition. The question whether typhus is diffused by a specific contagious principle, or by a vitiated human effluvium, may be regarded as theoretical, and therefore affords grounds for a diversity of opinion. The fact that patients affected with the disease, in certain conditions, are *foci* of the typhus poison, must be granted by all observers. But the admission of this fact does not necessarily impose the obligation to consider the poison a specific *virus*, analogous in its origin and distinctive properties to that of small-pox or measles; and that it is not so, is the view taken of it in this report. As here contemplated, it is the product of the chemical changes which take place in the excretions or *debris* of the body in health and disease, accumulated in close apartments,—a poison more frequently and readily generated by the exhalations and other excretive matters of typhus patients, than by those of persons suffering under other forms of the disease, or in the state of health,—a subtle aëriform principle, appropriately denominated *idio-miasma*, one of the generic forms of infection; and hence, typhus, instead of being classed among the *contagious* epidemics, is arranged among the *infectious*. In this theory is found a ready explanation of the origin and prevalence of typhus in jails, hospitals, ships, and the houses of the poor; and, also, of the mode in which cleanliness and ventilation arrest and exterminate the disease. These hygienic means, so effective against the general propagation of the disease in the upper classes of society, seem clearly to intimate the true nature and source of the typhus poison.

So entirely were the symptoms and course of the ship fever, as it occurred in New York, correspondent with the descriptions given of typhus in the standard works on Practical Medicine, that nothing in detail need be said in respect to them. It is sufficient to observe, that among the emigrants the malady was marked by great prostration at an early period of its development, requiring liberal administrations of the most efficient means of stimulation and support. Petechiæ were more general than in some former years. Though sometimes running to a fatal issue under a simple form, the disease, in its graver varieties, was generally attended with cerebral, thoracic, or abdominal complications. Erysipelas, often assuming a phlegmonous character, occurred in many cases, and frequently resulted in extensive sero-purulent deposits. Fluid collections of this kind were most common in the parotid glands, eyelids, and scalp. Secondary attacks happened in a few instances; and among the sequelæ was noticed an affection of the eyes of an amaurotic form.

As to the rate of mortality among the sick in the various hospitals of the United States and of Canada, there has been a great disparity; the differences depending on circumstances, in many cases, beyond the reach of control. In the New York hospital, as it is stated in the last annual report of the governors of that institution, "the number of typhus fever cases treated during the year, was 1,034; very many of them cases of the severest form of the disease, and demanding far more than the ordinary assistance of physicians and nurses. Of this number 136, or a little more than thirteen in the hundred, have died. This result, though it appears to be a large proportion, bears a very favourable comparison with the statistics of any other sanitary establishment under similar circumstances of disease, and affords a very striking contrast to the terrible mortality from the same cause among the recent emigrants from Europe in other parts of the continent." But though the amount of mortality has been influenced by the circumstances in which the sick in hospitals were placed, it is to be noticed that the proportion of deaths has been greater among those in the higher than among those in the lower ranks of life, a fact generally observed in the typhus epidemics of Europe.

With these remarks on the typhus or ship fever of the last year, we might close our report, were it not that a question of more than ordinary interest, relating to this subject, demands from us a careful examination,—a question on which the profession in this country and in Europe are divided, and which, it is thought, the phenomena of the recent typhus epidemic, added to the facts afforded by former prevalences of the disease, have largely contributed to elucidate. It needs hardly to be stated that we refer to the question of the identity or non-identity of *typhus*, and a form of disease entitled *typhoid fever*. That there are two forms of fever, bearing these names, which closely resemble each other, and yet which are essentially distinct in their nature, is alleged by some of the most renowned pathologists of the age. The leading distinctive features of the two diseases are, it is affirmed, intumescence and generally ulceration of Peyer's glands, and certain other morbid conditions, in one of them, and the total absence of these phenomena in the other.

Now if, in fact, two such diseases exist in nature, the committee, in what they have submitted concerning epidemic typhus, have omitted to distinguish them, or, in other words, have committed an error in confounding distempers specifically dissimilar; for everywhere have the two forms of disease been associated and looked upon as one and the same malady. The attempt to rectify such an error, if such have been made, would involve the necessity of giving the history of two epidemics, occurring cotemporaneously in the same localities, one to bear the title of *typhus*, and the other of *typhoid fever*, and of sustaining the distinction between them,—a labour not achievable in the hands of your committee.

But it is believed that no such distinctive disorders can be recognized in nature; that the two forms of disease have not respectively a development which is peculiar or *sui generis*; that the disorders in question do not, as distinct specific affections, occur promiscuously, or side by side, in the same circumstances, from the same causes, among the same class of persons, in the same hospitals, ships, jails, and private dwellings of the poor. The grounds on which we venture to express these opinions we beg leave respectfully to state to the Association; and we do this with the more freedom, as the question of the identity or non-identity of typhus and typhoid fever should and will continue to attract attention until a unanimity in regard to it is attained among the great body of enlightened physicians.

As the two forms of disease in question are fevers, and as the problem to be solved is, whether they are, or are not, one and the same malady, it will not be improper to glance at the means by which fevers are distinguished. It is much to be deplored that the distempers comprised in the class *febres* have not been more perfectly disentangled, and their specific relations to one another definitively settled. That this has not been done, is owing, not to any want of labour or talent devoted to the work, but to the difficulties and obscurities inherent in the subject.

The means of diagnosis in fevers are threefold; 1st, their efficient causes; 2dly, their symptoms; and 3dly, the alterations produced in the organism discovered after death.

In regard to the efficient causes of fevers, it is evident that a knowledge of them, for the purposes of diagnosis, is of the highest value; for were they in all cases ascertainable, they would furnish not only a ready and correct diagnosis, but a solid basis on which to rest a natural classification of fevers.

In respect to the symptoms, in the absence of a knowledge of the causes of fevers, it is clear that they are the only means by which, during life, one kind of fever can be distinguished from another. But in forming a diagnosis by these means, the mode of proceeding is in some respects peculiar. Whilst the acute phlegmasiæ and most other violent local diseases are generally cognizable, by their rational and physical phenomena, immediately, or at an early period after their development, it is frequently otherwise in the case of essential fevers. These diseases are not so commonly distinguishable at first sight. In order to collect the facts from which their differential diagnosis may be deduced, it is often necessary to observe them carefully, sometimes in more than single cases, during the space of several successive days. Moreover in the phlegmasiæ, the diagnostic phenomena are for the most part local, being confined to the organs immediately affected. In fevers it is not so; the diagnostic signs are spread throughout the economy, and are slowly and successively developed, and not until a certain number or variety of them have come fully into view, can a specific fever be recognized.

Of the anatomical alterations produced by fevers, it may be said that such of them as occur in the internal organs, and which are discoverable only after death, have no absolute claim to the character of diagnostic phenomena, since none of them are invariably present in the same specific fever, and many of them are found in different kinds of fever. There are, however, in some fevers, certain alterations in the organism so frequently revealed by autopsic examinations, that they may not improperly be admitted among the accessory means of diagnosis, especially in cases in which neither the causes nor the symptoms during life are sufficient to elucidate their distinctive nature.

From these general observations, we proceed to the question of the identity or non-identity of typhus and typhoid fever. And in doing so, leaving out of view for the present the history of their causes, we shall inquire:

1st. Whether these diseases differ so much in their symptomatology as to enable us to characterize them as distinct distempers?

2dly. Whether the morbid anatomy, and particularly the intestinal follicular lesions observed after death, indicate the diseases to be specifically different?

1. *Of the Symptomatology of Typhus and Typhoid Fever.*—In essential fevers there are a few symptoms which are common to them all; and to these symptoms are added, in particular fevers, certain phenomena which arise in the progress of the morbid movements that mark their special form and character. Now among the leading symptoms, mostly of the latter description, observable in typhus and typhoid fever, are the following: great prostration of the sensorial and muscular energies, cephalalgia, disagreeable dreams, somnolence, delirium, coma-vigil, deafness, aphonia, stupor, subsultus tendinum, picking of the bedclothes, and at imaginary objects in the air, small, frequent and feeble pulse, pungent heat of skin, petechial eruptions, sudamina, dry and brown or black fur on the tongue, accumulations of dark sordes on the teeth and gums, epigastric pain, tenderness of the abdomen, gurgling in the intestines, diarrhœa, meteorism, hemorrhage from the nose and bowels, and retention of urine.

Though such are the phenomena which occur in typhus and typhoid fever, yet all of them may not present themselves in every case; but it is observable that many of them, and especially those attendant on the last stage of fatal cases, are developed consecutively and in various degrees of force, in every individual example of both diseases.

Now it is among the phenomena enumerated, that we must seek for the diagnostic symptoms of the two diseases, if any such phenomena exist. If the diseases be specifically different, they should respectively present certain pathognomonic or characteristic symptoms. If they possess no such symptoms, nor any other diagnostic phenomena, they are obviously not distinct disorders. But let us examine the symptoms with a view to ascertain how far they indicate diseases different in their nature.

It is generally admitted that there is much variety in the symptoms of the premonitory and successive stages of typhus; and a similar variety, it is acknowledged, occurs in the corresponding stages of what is called typhoid fever. The incipient symptoms are often, for the most part, precisely the same in both maladies; and in whatever subsequent parallel stages we examine the two disorders, we find no signs by which to distinguish them as different *species* of fever. If in the several periods or stages of typhus we observe particular combinations of symptoms, we find the same combinations in the several periods of typhoid fever. Phenomena, which are usually present in typhus, are sometimes absent, or but slightly developed; and the same is true in typhoid fever. The constitutional phenomena in the latter disease are grouped, and transformed in the same manner as are those which occur in the former. So far then as the general symptomatology of these diseases enables us to form a judgment, they are essentially the same. This conclusion, it is believed, might be sustained by an appeal to numerous cases recorded as genuine examples of typhus and typhoid fever.

The phenomena on which the advocates for the distinctive nature of typhoid fever mainly rely in forming their diagnosis, are, it appears to us, totally insufficient to establish the *specific* character of the disease. The more important of these phenomena are lenticular rose-coloured spots on the trunk, chiefly on the anterior part of the abdomen and chest, sudamina, gurgling in the right iliac region, tenderness of the abdomen, diarrhœa, meteorism, enlargement of the spleen and epistaxis. But which of these phenomena does not occur in typhus? In regard to the size, colour, situation, and time of appearance of the eruption, there is nothing remarkable in the one disease which is not equally so in the other. The eruption in typhus, though among the characteristics of the disorder, is variable in size and colour; sometimes it is of a rose hue, but frequently violet or purple, at one time persistent under pressure, and at another evanescent. Such were the varieties of the eruption in the cases of typhus, treated under the direction of one of your committee, in the New York Hospital in June, 1840, and at various times in subsequent years,—cases of the identical nature of which there was not the slightest doubt, all of them having originated from the same source; namely, the fever poison *idio-miasma*, generated in crowded emigrant ships. In no respect did the eruption differ essentially from that which occurs in dothinenteritis or typhoid fever. As to sudamina, they are common to various states and kinds of disease.

It is well known that age, constitution and modes of life, climate, season, and especially epidemic influences exert a powerful agency in modifying the symptoms of diseases; and there is good reason to believe that to such causes, the varying forms and character of the eruptions in essential fevers are in a great degree attributable. In some seasons the eruption in typhus is absent in very many cases; and moreover, it is sometimes wanting in cases in which the Peyerian glands are extensively diseased. Dr. Elliott, one of the physicians of the Bellevue Hospital, reports an instance in which "Peyer's plates were much enlarged and deeply ulcerated," and in which "there was no eruption, nor any diarrhœa, during the whole progress of the case."* Are not the rose-coloured spots of typhoid fever the primary forms or conditions of the petechiæ or maculæ of typhus? Professor Clark, one of the physicians of the hospital just named, says, that "in the proportion of about one-half of the typhus fever patients, a *rose-coloured* eruption occurs on the body, which frequently in the progress of the fever assumes a petechial appearance.† To elevate the shades of colour, and the varieties of form of the eruption to the rank of diagnostic phenomena, indicative of distinct diseases, when the more striking and important phenomena are unequivocally expressive of an identity of disease, is a refinement which, it appears to us, no clinical observer can regard with favour.

Nor are the diarrhœa and gurgling in the right iliac region worthy of consideration, as signs by which the affection called typhoid fever may be distinguished as a specific disease, or one different from typhus. These phenomena occur in cases in which the general symptoms of the two forms of disease, arising from disturbance of the nervous, vascular, and secretory functions, are the same, and which therefore indicate the affections to be one and the same. Gurgling in the bowels is common to many diseases; and as to diarrhœa it frequently occurs in fevers in which there is no follicular disorder of the intestines; and though it is generally present in dothinenteritis, it is sometimes absent. Dr. Swett, late President of the New York Medical and Surgical Society, so well known for his devotion to pathological studies, in discoursing on the cases of ship fever, treated at the New York Hospital, at a meeting of that society on May 1st, 1847, stated that "in the case in which the ulceration was most extensive, there had been no diarrhœa; in the other case with ulceration less in amount, though still considerable, the diarrhœa had been profuse."‡ Similar remarks are applicable to the meteorism and tenderness of the bowels; they frequently occur in disorders different in their character, and are occasionally wanting in typhus and typhoid fever. With respect to epistaxis and delirium, they are totally destitute of any claim to the character of signs denoting a specific difference between the two forms of disease in question.

But though the rose-coloured spots, the diarrhœa, and gurgling in the bowels, the meteorism, tenderness of the abdomen, epistaxis, and delirium, taken severally, or any two or three of these phenomena combined, do not enable us to distinguish typhus fever from the typhoid affection of Louis, still, it may be asked, do they not, when collectively present, that is, when grouped together in the same case, indicate these diseases to be essentially different? In regard to this question, it is to be observed, that, in discriminating fevers, the ablest clinical physicians place more reliance upon the uniform constitutional phenomena, as manifested in the morbid conditions of the nervous, vascular, and secretory organs, than upon those phenomena which are local and contingent. The former are esteemed the efficient, and the latter the accessory means of diagnosis. Are not intermittent and remittent fevers known and distinguished by their types and general phenomena, and particularly by the modes in which the phenomena are combined or succeed each other? In these forms of fever there is often inflammation or engorgement of particular organs, and yet, notwithstanding such complications, each of these diseases is readily recognized and distinguished. Even in yellow fever, the course and form of the general symptoms, springing from derangement of the nervous and vascular systems, are vastly more important as indications of the specific nature and distinctive character of the disease, than the symptoms immediately connected with the gastro-intestinal lesions. These latter, it is true, are sometimes valuable subsidiary means of diagnosis; and, indeed, are occasionally essential aids in deciding in doubtful cases; but, aside from the general phenomena, they would scarcely suggest the idea of yellow fever; whereas, the constitutional symptoms are, of themselves, sufficient, especially when the disease is epidemic, to show the true character of the malady. The same remarks, in regard to the symptoms depending on special organic lesions, are applicable to every other essential fever. In the contagious exanthemata it is otherwise. In these, the eruption is, with very few or no exceptions, a constant occurrence, and is therefore regarded as one of their leading diagnostic phenomena.

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* Annalist, vol. ii. p. 249; edited by William C. Roberts, M. D., New York.

† Transactions of the Medical Society of the State of New York, vol. vii. p. 59, 1848.

‡ Annalist, vol. i. p. 389.

Now if we examine the phenomena of typhus as described by English writers, and compare them with those of typhoid fever as described by M. Louis and others, are we not warranted in giving to the general symptoms a higher value as diagnostics of the special nature of these diseases, than to those which indicate an affection of the glands of Peyer? Is not typhus distinguished in all cases by the character and train of the general symptoms, rather than by any disturbance of the abdominal organs, indicated by tenderness under pressure, diarrhœa, gurgling in the right iliac region and meteorism? And is not the same true of typhoid fever? That such is the fact, in respect to the latter disease, there can be no question; for Louis and others have recorded cases as typhoid fever in which the symptoms of follicular disease of the bowels were obscure or not conspicuous.

Idiopathic fevers, then, are distinguished by the kind and character of their general symptoms, and by the mode in which these are grouped and successively developed. In comparing fevers with one another, the order of the occurrence, as well as the peculiarity of all the phenomena, should be observed. When this is carefully done, there is generally no difficulty in discriminating particular fevers. All cases of fever are to be considered of the same nature in which the constitutional symptoms occur in the same order, and agree in their general features. The local, contingent, and minor symptoms, as well as the variations in the mode of attack, violence and duration of the morbid phenomena, indicate modifications of the disease, and nothing more. A physician practically versed in the diagnosis of fevers, on visiting the wards of a hospital in which the various species of essential fevers are assembled, will distinguish each particular kind of fever, not by tenderness of the abdomen, gurgling in the bowels, diarrhœa, and epistaxis—for these phenomena may or may not be present in fevers unlike each other—he will found his diagnosis on the type, and general course and peculiarity of the phenomena manifested in the nervous, vascular, and secretory functions. In individual cases, in which the type and characteristic symptoms of a special form of fever are not as fully and clearly developed as is necessary to settle the diagnosis, he will await their occurrence, inquire into the etiology of the disease, and avail himself of the light thrown on the nature of the malady by the occasional or contingent symptoms. Thus, in yellow fever—a disease usually well marked and distinguishable by a train of general symptoms, cases occur in respect to which a doubt may exist as to their true nature, until the appearance of black vomit, an event in itself of no value as a diagnostic of a specific form of fever, except when it concurs with certain diagnostics presented by the general system.

Now in typhus and the typhoid fever of Louis, the morbid phenomena are so correspondent in the sensorial, vascular and other functions, and are so similarly catenated or related to one another from their accession to their termination, that the attempt to assort and group them, so as to make them express two different diseases, is a labour which, it appears to us, must fail to show any distinction which is found in nature and cognizable by practical minds.

If such be a just view of the subject, in what light are we to regard the phenomena considered by Louis and others, as establishing a specific difference between the two forms of disease in question? To say nothing of the rose-coloured spots, delirium and epistaxis, are not the meteorism, tenderness of the abdomen, gurgling in the intestines and diarrhœa, occurring in fever, simply indicative of abdominal derangement, in the same manner as cough, expectoration, and certain auscultatory signs denote a pulmonary complication, or as injection of the adnata, intolerance of light, headache and delirium, show encephalic disorder? The principal anatomical lesions in typhus are found in the three great cavities; and there are no reasons that would warrant the forming of a special disease of those cases in which abdominal symptoms are prominently developed, which would not equally justify the creation of new diseases of cases in which pneumonic and cerebral symptoms are predominant. If the term *abdominal* typhus, applied by the German physicians to dothinenteritis, be appropriate, it may not be improper to apply the terms *thoracic* and *cerebral* typhus to those varieties of the disease in which the lungs and brain are the organs that chiefly suffer organic changes. These terms, so used, import special complications of typhus, but not distinct diseases.

That every case described by Louis as typhoid fever was genuine typhus is, perhaps, doubtful; but that most of his cases in which he found, after death, follicular ulceration of the bowels were not that disease, he has, we think, failed to show by any diagnostic phenomena. Had no autopsies been made, the cases would have been considered, by every pathologist, as simple modifications of the typhus of England and other countries. In searching for novelties in pathological anatomy, it should be borne in mind that the evidence for and against the theory of the essential nature of fever vastly preponderates on the side of the former; and, consequently, all anatomical lesions are to be considered contingent or secondary. The anatomical alterations in typhus and other kinds of fever sometimes vary so much in different cases, that were one called upon to decide on the nature of the disease in a particular case, by inspection of the body after death, it would frequently be difficult, and sometimes impossible, to say of what *species* of fever the patient died. Now such an embarrassment, in forming a diagnosis, rarely occurs in cases in which the symptoms, during the normal course of the disease, are carefully observed. In the phlegmasiæ proper, a post-mortem diagnosis is, in general, not left in doubt, but is promptly and certainly attained.

Upon the whole, it seems to us, that the ingenious attempts which have been made to establish a specific distinction between typhus and typhoid fever, by an analysis of the *symptoms*, have yielded no other profitable result than a lucid exhibition of the modifications which genuine typhus assumes under different circumstances of temperament, habits and mode of life, climate, &c. In no other light can we regard the able researches on the subject by Louis and numerous other pathologists in Europe and America.

2. *Of the Morbid Anatomy of Typhus and Typhoid Fever.*—As, then, the *vital phenomena*, observed during the progress of the two forms of disease in question, lead to the conclusion that they are not specifically distinct in their nature, it seems that the opinion that they are so, has arisen from the discovery of dothinenteric lesions in one form of the malady and not in the other. The theory which localizes the cause of fever in the stomach and intestines, so fashionable in the last thirty years, is obviously the source to which may be traced the distinction which is made between typhus and typhoid fever. Stated in a brief form, the theory, in relation to these diseases, is explicitly this: a fever with ataxic or adynamic symptoms in which the glands of Peyer and Brunner are tumefied and ulcerated

is typhoid fever; and that a fever attended with similar constitutional phenomena, and in which those glands are not diseased, is not typhoid, but some other species of fever. That Louis employs the fact of the non-existence of dothinenteric lesions in febrile cases, to prove that the disease is not typhoid fever, is shown in his work on yellow fever, in giving the diagnosis of which he specially distinguishes the two diseases anatomically, by the normal condition of the intestinal glands in one of them, and the constant alteration of them in the other.

That there is a great and fundamental error in the doctrine which makes a specific difference between the diseases to which our inquiries relate, may, we think, be shown by adverting to a few of the anatomical facts and general arguments which bear directly on the subject.

If a diseased state of the agminated and isolated glands of the bowels constitute the peculiar and essential *anatomical character* of typhoid fever, then certain other maladies considered by every observer as different in their nature, should be regarded as identical with that disease; for there is abundant evidence to show that in many instances of the disorders referred to, those glands are inflamed, tumefied or ulcerated.

It must here be noticed that by the term *anatomical character* of a disease is meant, according to Louis, a morbid condition of organic lesion which invariably occurs in the same disease, and which, with certain other phenomena, distinguishes the disease from all others. Thus, in speaking of yellow fever, he says: "The red or black matter found in the stomach and intestines, not having been found *in all the cases*, it cannot be considered an *anatomical character* of that disease." But he adds, "it is not so with the alteration of the liver, which was more or less exactly the same *in all the cases*, and which for *that reason* ought to be considered as the *essential* anatomical character of the yellow fever of Gibraltar of 1828."

Now, if we use the term *anatomical character* in the rigorous sense in which it is employed by Louis, are we not bound to consider every fever in which Peyer's glands are diseased or ulcerated as typhoid fever? No special form of lesion of the intestinal glands, analogous to the special form of lesion of the skin in smallpox, is described as distinctive of the typhoid affection, for every morbid condition of them, except perhaps the tuberculous, is recognized in the disease.

The truth is, disease of the glands of Peyer and Brunner is, in none of its forms, in the strict sense of Louis, an anatomical character of any one species of fever. It occurs in disorders unlike in their causes, and dissimilar in their character. It occurs occasionally in the different kinds of *koino-miasmatic* fevers, and also, now and then, in the contagious exanthemata. It occurs especially and most frequently in *idio-miasmatic* or genuine typhus, and in febrile maladies which, in their progress, become adynamic, or, as it is usually and properly said, *typhoid*. It occurs more generally in typhus, in some years, and in some localities and countries than in others; and when it occurs it is an effect or complication, and not the cause of the febrile disturbance of the system.

If these statements be correct, and that they are so, might, we think, be established by abundant testimony, there are no solid reasons for considering the affection of Peyer's glands a feature distinguishing the typhoid fever of Louis from the typhus of England and other countries. We have already shown that these diseases are so similar in their symptoms, that they cannot by these means be rationally characterized as different species. Whatever variety of forms they exhibit in their general or local phenomena, they scarcely ever fail to manifest a unity of type and character; and consequently they should be regarded as the same disease. Indeed, as we have said before, were it not that post-mortem examinations had revealed a lesion of Peyer's glands, there never would have been a question as to their identity.

With all the light which modern pathological anatomy has shed on the nature and complications of fever, and with all the aid afforded by researches directed to the elucidation of the connections between the symptoms of fevers, and the structural alterations which occur in this class of diseases, can it be determined with a degree of certainty, approaching the exactness with which we are able to announce the existence of a pulmonary or cerebral complication, that the glands of Peyer are diseased in a given case of fever? A high degree of probability that they are affected may be inferred from particular symptoms; but after all, nothing but an autopsy can establish the fact.

That dothinenteritis occurs in genuine typhus is proved by the concurrent testimony of many physicians, who have enjoyed the most extensive opportunities of studying the disease, in all its forms and varieties of complication, and whose learning and talent for observation entitle their opinions to implicit confidence. While, on the one hand, it is shown by their inquiries that the intestinal glands are frequently affected in typhus, it is, on the other, demonstrated that in the form of fever denominated typhoid, the follicular disease of the bowels is sometimes wanting. To cite all the proofs which might be adduced in support of these remarks, would require wider limits than the present occasion affords. The statement of a few facts, bearing on the points in question, will sustain what a greater number could not render more evident. And first, let us advert to the evidence of some European authorities.

In no country is typhus more prevalent than in Ireland. The disease is there seen in all its varieties, symptomatic and anatomical; and it is to the enlightened physicians of that country that we are indebted for much valuable information in relation to the nature of the disease. Dr. Kennedy, in giving an account of the typhus which prevailed in Dublin in 1837–38, says: "The only post-mortem appearance that was at all constant, was congestion of the vessels of the membranes of the brain."—"But if this epidemic typhus was not characterized by any uniform or constant pathological changes, it was very remarkable for the almost total absence of those abdominal lesions which have been regarded by some as the invariable attendants of typhus fever. Indeed, in this respect, this epidemic affords a striking and conclusive refutation of the false and hasty generalizations of the French pathologists on this subject. In this respect, also, it differs altogether from the epidemic fever of 1826, (which the writer had an ample opportunity of investigating while in charge of fever patients, supported at the expense of the government, at the Meath Hospital that year,) in which, in a *large proportion* of the post-mortem examinations made by him, more or less disease of the glands of Peyer was found."* The typhus epidemics here brought into contrast by Dr. Kennedy, happily illustrate a well-known law of epidemics, namely, that the same popular disease varies in its form and anatomical lesions in different years and seasons. There can be no question that the two epidemics of which he speaks were essentially the same in their nature, and the difference in the condition of the intestinal canal in the two epidemics was incidental, certain influences in 1826 operating to produce "in a large proportion" of the cases, "more or less disease of the glands of Peyer;" whereas, in 1837–38, the analogous modifying influences occasioned scarcely any organic changes in the bowels, but chiefly a different complication, "a congestion of the vessels of the membranes of the brain."

Dr. M'Cormac, of Belfast, who evinces in his work on fever great familiarity with the diseases of Ireland, after minutely describing the various changes which take place in the aggregated and solitary follicles of the intestines, remarks: "This exanthem, if we may call it so, does not present the regular phases seen in small-pox; it may exist during the greater portion of the disease, and even after the fever has terminated." And he adds, "after what I have said, I need hardly repeat again, that together with its results, it is only an occasional contingency in fever, and seemingly more frequent on the continent than in this country—from what cause, however, if it be this, I do not pretend to say."

Dr. Stokes, of Dublin, than whom there are few physicians more capable of arriving at correct conclusions on pathological subjects, regards "typhus as an essential fever which affects in an especial manner in different cases, and *during different epidemics*, either the head, the chest, or the abdomen." He alleges that "the ulcerations of the intestines so much insisted upon by the French pathologists, are neither of constant occurrence, nor are they characteristic of the disease; in one epidemic they are found on dissection, much more frequently than in another."†

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* Medical Report of the House of Recovery and Fever Hospital, Cork street, Dublin. By G. A. Kennedy, A. M., M. D., Dublin, 1839.

† Medico-Chirurgical Review, No. 81, p. 71.

Dr. Graves, the able colleague of Dr. Stokes at the Meath Hospital, entertains the same view of the nature of typhus.

In accordance with these opinions, are the extensive observations made in England, recorded in the writings of Drs. Hewet, Tweedie, Copland, Southwood Smith, Marshall Hall, and others. All these concur that the glands of Peyer are frequently the seat of anatomical changes in typhus.

Similar investigations in Scotland have established the same facts in regard to the pathological anatomy of the disease in that country. Dr. Davidson, in his Thackeray Prize Essay on typhus fever, gives a table showing the number and kinds of lesions observed in the post-mortem examinations of sixty-three eruptive cases admitted into the Glasgow Fever Hospital, from May 1st to November 1st, 1839, from which it appears that enlargement of Peyer's glands and ulceration of the intestines were present in many cases.

These are but a few of the evidences of the occurrence of dothinenteric lesions in the typhus of Great Britain and Ireland. But it may be said that the pathologists of these countries confound diseases which are specifically different; and that this is owing to their mode of studying the phenomena not being so minute and philosophical as the method pursued by the physicians of France. If the French make distinctions where the English do not, are we to accord to the former superior powers of discrimination? The English, Scotch, and Irish physicians have given evidence of talent and industry in the investigation of febrile pathology not surpassed, we think, by the medical men of any country. They have patiently examined the grounds upon which their continental brethren have drawn a line of distinction between typhus and typhoid fever; and, having done so, they deny that there is any foundation in nature for it. Dr. Davidson, who, it is believed, expresses the general opinion of British physicians, says: "Would it not, therefore, be refining our classification beyond all precedent, to separate typhus and typhoid fever with two species, where it has been shown that the symptoms in both are the same, or very nearly so, that they have nearly the same laws, as far as these have been ascertained; that the severity of the symptoms in both is not in proportion to the lesions of the intestinal follicles; and that the other complications of both are similar, although *various in the same place at different periods*, while the only characteristic in dispute has been acknowledged not a constant, and therefore, not a necessary element for the existence of the disease."*

Such, then, being the opinions of physicians practising in the British Islands, it becomes a question of curious interest, if nothing more, to learn what impressions have been produced on the minds of those who, conversant with the typhoid fever of Paris and other continental cities, have personally compared this disease with the British typhus. Dr. Lombard, of Geneva, so often quoted on this subject, during his visit to England, Scotland, and Ireland in 1836, examined several cases of typhus, two in Dublin, and one in Glasgow, and finding the symptoms similar to those of the typhoid fever of the Continent, with which he was familiar, expected to find after death the usual dothinenteric lesions; but, on examination, to his great astonishment, no such lesions were found. He says, "in the whole course of my experience I have met with nothing which has surprised me more than this occurrence; I had been for years engaged in the study of typhus fever, and for years my almost daily experience in the dead-room led me to associate certain lesions of the alimentary canal with the symptoms of this disease, when suddenly I find myself assailed by a new experience exactly contradictory of my former; nor was my new experience unconfirmed by that of the Glasgow or Dublin physicians." With such facts before him, to the question, "whether the two diseases are different or the same?" he answers: "I cannot allow that they are specifically distinct, and consequently I am almost forced to give up the opinion that the local changes of structure are of paramount importance in causing or producing the symptoms that accompany this type of fever."† Though Dr. Lombard subsequently resumed the opinion that the two diseases are different, it appears to us he did so without sufficient reasons.‡

In the following year, 1837, Dr. Staberóh, of Berlin, made a visit to Great Britain and Ireland, and for six months devoted himself to the study of the fevers of those countries. His intimate acquaintance with the typhoid fever of Paris especially qualified him to compare the diseases in question; and, after doing so, he concluded, that though in many cases the British typhus wanted the follicular lesion of the bowels, the disease was the same as the typhoid affection of the continent.*

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* Thackeray Prize Essay, p. 80. Appendix, British and Foreign Review, No. 22.

† Dublin Journal of Med. Science, vol. x. pp. 19, 22, 23.

‡ Ibid., p. 101.

To the above authorities in favour of the identity of the two forms of disease, we must not omit to add that of M. de Claubry, whose able and elaborate investigations of the subject were published in Paris in 1844. His assemblage of facts, and the inferences he draws from them, seem scarcely to admit of being rationally controverted.

It thus appears that there are many of the more eminent pathologists of Great Britain, Ireland, and other European countries who concur in the opinion that no essential difference exists between typhus and typhoid fever. Their observations, however, establish the fact, that dothinenteritis frequently modifies the character of typhus; and that this complication is more common in some seasons and some countries than in others—a circumstance referable to causes which, though obscure, are clearly adventitious.

The necroscopic researches in this country have afforded no satisfactory evidence of there being a specific difference between the forms of malady under consideration. On the contrary, the facts already spread before the public, as well as those daily accumulating in our hospital registers, when carefully analyzed and compared with the phenomena of the typhus and typhoid epidemics of other countries, show that these diseases are one and the same. Cases presenting the same general features, the same nervous, vascular, eruptive, and other phenomena, and springing from the same efficient cause, are found to differ merely in their complications, one case exhibiting after death various anatomical changes, particularly alterations of the glands of Peyer and Brunner, and others showing no such alterations.

The strongest testimony, as it appears to us, yet adduced on this side of the Atlantic in favour of the opinion of the non-identity of typhus and typhoid fever, is that furnished by Dr. Gerhard of Philadelphia. This gentleman has described, in the *American Journal of the Medical Sciences* for 1837, two epidemics, occurring in that city in different years, one of which he designated typhus, and the other typhoid fever. In speaking of the former (typhus), he says, "In this large number of autopsies, amounting to about fifty, there was but in one case, and that doubtful in its diagnosis, the slightest deviation from the natural appearance of the glands of Peyer." In the epidemic which he denominated typhoid fever, it appears that Peyer's glands were generally affected, and hence he inferred that, notwithstanding the similarity of the general symptoms to those of typhus, the malady was not typhus. Now, if what has been said of the variety of complications which the same epidemic disease assumes in different years, be true, is it not fair to conclude that the differences in the morbid anatomy of the two epidemics described by Dr. Gerhard, were due to incidental causes: and that the two epidemics were the same disease modified in different seasons, as in the instances mentioned by Dr. Kennedy, and adverted to by Drs. Stokes and Davidson?

The post-mortem examinations made at the New York Hospitals, during the last year, might be deemed sufficient, apart from all other testimony, to establish the identity of typhus and typhoid fever. In the cases of ship fever, a pure form of typhus, a disease unquestionably originating in every instance from the same poison, follicular disease of the intestines was found after death in some cases, and not in others. Dr. Stone tells us, in the *New York Annalist*,† that, in four weeks, ending May 12th, 1847, there were admitted into the Bellevue Hospital about four hundred and sixty-six cases, sick of typhus; and he says that "the most constant anatomical lesion which I have found in the examination of about twenty-five of those who have died, is an enlargement and softening of the spleen. Peyer's glands were found more or less diseased in about one-fourth of these cases, and the heart more or less softened in a somewhat larger proportion." The same gentleman, in another communication, published in the *New York Journal of Medicine*,[*] relating to the same fever, gives the following among his other conclusions, drawn from observations of the disease in New York and New England: "That typhus and typhoid fever, so called, are identical." Professor Clark, in illustrating the morbid anatomy of typhus, at a meeting of the New York Pathological Society, Feb. 23, 1848, stated, in reference to a particular hospital case, that "the usual old typhoid lesion affected the intestines with the common appearance of the present epidemic." "This case," he said, "allies the present epidemic with the typhoid fever."[†] At a meeting of the same society, held March 8, 1848, Dr. Swett made the following interesting statement. He said, "that fever had occurred at the Bloomingdale Lunatic Asylum, carried thither by an insane emigrant, and fifteen persons had been attacked with it. Nine or ten had come to the hospital, and two had been examined post-mortem. In the first there were no lesions of any kind: in the second, there were ulcerations of the small intestines" "Where the ulcers existed, instead of attacking Peyer's glands in the middle, they attacked the edges, extending two or three feet up the intestines, and then disappearing. Some had cicatrized, and some were cicatrizing. Both cases originated from ship fever in a very cleanly and healthy set of men; so that it seems as if the same poison might communicate to one ulceration, and to the other none." Dr. Swett ingenuously added, "that his belief in the non-identity of the diseases lessened daily, and he could not discriminate between cases presenting intestinal lesions (typhoid), and those which did not (typhus)."[‡] Dr. Griscom, one of the physicians of the New York Hospital, states, that of ten autopsies of patients dying of ship fever in that Institution, in July, August, and September, 1847, six presented follicular disease of the intestines. Peyer's plates were prominent in four, and ulcerated in two. Facts of this kind are so frequently observed in the New York Hospitals, that they have, in a measure, ceased to attract the attention of many physicians once deeply interested in their investigation, in reference to the question of the identity of typhus and typhoid fever.

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* Dublin Journal of Medical Science, vol. xiii. p. 426.

† Vol. i. p. 383, No. for May 15, 1847.

To the same conclusion tend the inquiries, relating to this subject, in other quarters of our country. A writer in the *American Journal of the Medical Sciences*,[§] in speaking, it is presumed, of the ship fever in Philadelphia, says: "We have lately seen a great number of cases of fever in recently arrived Irish emigrants—the majority of the cases were of well-marked typhus fever; a few were of equally well-marked typhoid fever; while, in a third class of cases, the characteristics of these two fevers were so completely blended that it was very difficult to determine which of the two predominated." And he adds, "here, then, we have persons who have been exposed to precisely the same morbific causes, attacked with fever of a similar type, bearing the characters in some of the typhoid fever, in others of the typhus, and in others again a union, as it were, of the characteristics of both. This fact would seem to prove that the typhoid is a mere form or variety of the typhus fever." He also remarks, that "in the present state of our knowledge on this subject, it is, we conceive, much safer to consider the typhoid as one of the forms of typhus fever."

In view of the facts which have been stated, it seems to the committee that no reasonable doubt can remain that typhus and typhoid fever are identical. Were medical men united in this conclusion, might we not hope, that with undivided attention, and a union of effort, more rapid advances would be made in determining the causes of the morbid condition of the Peyerian glands and other organs which occur in some cases of typhus and not in others? On this subject, we would, in conclusion, remark, that it appears to us, that the deposit of typhus matter, so called, occurs not only in the intestinal follicles and mesenteric glands, but also in and beneath the mucous membranes, in the lungs, spleen, and probably in the kidneys; that in some cases this form of epigenesis shows itself mostly, if not exclusively, in the intestines, in others in a different part, and in others again in various tissues; that in some instances it is not discoverable in any organ; that in the typhus of some seasons and countries it is generally present in the intestines, and in others, absent in many or a large majority of cases.—*Trans. of Am. Med. Association*, vol. i.

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[*] Vol. x. p. 176, No. for March, 1848.

[†] Annalist, vol. ii. p. 249.

[‡] Ibid., vol. ii. p. 265, No. for April 15, 1848.

[§] No. xxix. p. 202, January, 1848.

Compression in the treatment of Aneurism.—The Committee of Surgery of the American Medical Association, in their highly interesting report made in May last, stated that they were cognizant of but five cases of aneurism in the lower extremities in which the treatment by pressure had been employed in this country. These cases were treated by Drs. Buck, Rodgers and Watson of New York, Knight of New Haven, and Mütter of Philadelphia.

"The first case was one of femoral aneurism, in which pressure was fairly tried and did not succeed, and it became necessary at last to resort to the operation by ligature.

"The instance which occurred to Dr. RODGERS was that of a negro seaman, aged 47, who, two months before, observed a swelling in the popliteal region, which arose after a fall. The tumour was of the size of a duck's egg. and the symptoms of aneurism were well marked. He entered the New York Hospital, and on the 15th of January, 1847, pressure was made upon the artery near the groin by means of an arterial compressor. This was continued till the 12th of February, but it being found impossible to effect the desired object with it, Dr. Rodgers substituted another, consisting essentially of a metallic plate placed upon the inner side of the thigh over the vessel, having three holes at short intervals through which screws passed, each having at one of their extremities a firm pad, and at the other a projection to which a key was adapted, by means of which pressure could be made upon the femoral artery at the different points. This metallic plate was secured over the artery by means of broad straps attached to a sliding plate of steel, secured in a metallic bar, applied longitudinally to the back of the limb.

"Soon after the adjustment of this instrument, it was ascertained that the patient loosened the screw in the absence of his attendant. He was now watched night and day for three days, by the end of which time all pulsation in the tumour was entirely arrested. The swelling gradually subsided to half its original size. The only inconvenience experienced by the patient was a numbness of the limb, upon the first removal of the instrument, but this soon left him, and he was discharged cured on the 13th of April.

"The case of Dr. WATSON was one of femoral aneurism, treated also at the New York Hospital. The subject of it was an intemperate Irish woman, aged 38. The tumour, which was hard and painful to the touch, had existed for a month, and extended from the upper and inner third of the thigh to within a finger's breadth of the internal condyle of the femur, and at the point of its greatest circumference, reached from the inner border of the rectus muscle to the middle of the outer side of the thigh.

"At midday, on the 23d of September, 1847, pressure was made by means of two pads secured to circular straps over the artery, with counter-compresses on the outer side of the thigh, the pressure produced being regulated by a screw which acted directly upon the pads over the vessel. The first compress was fastened over the artery just as it emerges from beneath Poupart's ligament, the second, a short distance below it, and both were so arranged as partially to control the circulation in the tumour, the pressure being regulated by alternately tightening one compress and slackening the other, in order to prevent abrasion of the integument. On the 24th the patient was restless; on the 25th she complained greatly of cramp and pain in the leg, which was much swollen, to relieve which a roller was applied and the limb elevated on a pillow.

"By the 26th all pulsation had left the tumour. The upper compress was now removed—sixty-eight hours having elapsed from its first application, and very slight pressure was kept up by means of the lower one. No return of pulsation followed the removal of the compress, and in an an hour afterwards the lower pad was also taken away. The skin beneath the upper compress had become somewhat abraded by the pressure, which required the application of a poultice, and subsequently simple dressings for a few days.

"On the 28th no pulsation could be detected in the tumour, or in the femoral artery below the point, upon which the upper pad had rested.

"By the 28th of October the tumour had much diminished in size, and become softer.

"On the 12th of November, nearly two months subsequent to the commencement of the treatment, she left the hospital well, the tumour still gradually becoming smaller. There was no pulsation to be detected in the anterior or posterior tibial arteries, or at any point below the giving off of the profunda, and the femoral artery itself below that point was felt like a solid cord beneath the integument.

"The case furnished by Dr. MUTTER, was that of a book-keeper, aged 41, whose general health was feeble, and who, six weeks previous to the 24th of September, 1847, had been seized with stiffness in the right ham, which was soon followed by a pulsating tumour of the size of a turkey's egg. After a few days' rest in the horizontal position, his treatment was commenced by applying a roller to the limb in order to prevent swelling, and the application of one of Charrière's compressors, with a small oval pad over the femoral vessel where it passes down to become popliteal, and another similar compressor with a larger pad over the artery at the upper third of the thigh. The limb was then placed upon an inclined plane. After remaining in this position for twelve hours, the lower compressor was tightened until all pulsation ceased in the tumour. The pain produced by this procedure was severe, and could only be borne at first for half an hour. When it became insupportable, the upper compressor was screwed down, and the pressure from the lower one removed. The patient supported the pressure above for two hours without much difficulty; it then became annoying, and in order to relieve the suffering, the lower compressor was again tightened.

"By thus alternating the points to which it was applied, the necessary amount of pressure was kept up without excoriation, or any other injurious consequence resulting, and from the peculiar construction of the instruments, and the previous application of the roller, the swelling of the limb was trifling. During the treatment, the diet of the patient was restricted, and digitalis was administered to him.

"By the 12th day the tumour was reduced to about half its original size; had become solid, and was free from pulsation. Notwithstanding these circumstances, Dr. Mutter did not consider it safe to allow his patient to move about, or even to relax the treatment, but continued to pursue the same course, with slight modifications, for six weeks longer. At the expiration of this period, the tumour had nearly disappeared, the collateral circulation was fully established, and the disease radically cured."

Dr. Knight's case we have given in full in our preceding No. p. 255.

To these cases a sixth is now to be added successfully treated by Dr. A. E. HOSACK of New York, and the details of which we take from the *N. Y. Journ. Med.* for July last:

The subject of the case was a coloured man aged between fifty and sixty, in whom Dr. H. tied the femoral artery at the lower part of the upper third of the thigh for popliteal aneurism, about the size of a small goose-egg. Upon securing the artery in the ligature, all pulsation in the tumour ceased: the wound being dressed in the ordinary way, healed kindly in the usual time, casting off the ligature on the 26th day; after which the swelling continuing gradually to decline, left the patient to all appearance perfectly well, with the exception of a slight halt in his gait, which entirely disappeared after a few weeks. About the middle of the following August he returned to Dr. H. with the tumour of nearly the size it was at the time of the operation, but it had not the same elasticity, and was more solid to the feel. Pulsation was distinctly to be perceived in the tumour, and could be detected in the femoral artery quite up to the point at which the ligature had been applied, as well as in the tibial branches, but with diminished force. Under these circumstances, Dr. H. determined to make trial of compression. Preparatory to the application of the instrument the patient was directed to remain quietly in bed for three or four days, which being complied with, the instrument was adjusted, and pressure exerted upon the femoral artery, so as to arrest completely all pulsation in the tumour; after an hour or more, it became necessary, in consequence of pain produced by pressure, to shift the pad an inch or more from the point just compressed, and so changed from time to time, as circumstances required; but having one plate or pad instead of three, (the other two being an addition of Dr. Rodgers, which certainly is an improvement,) Dr. H. was compelled to make compression upon the artery as it passes over the pubis, while changing the position of the pad. The instrument was thus continued until after the fifth day, when finding no pulsation in the tumour, it was removed. After the lapse of a fortnight or more, a slight thrill was to be detected in the aneurismal sac, when the instrument was re-applied for thirty-six hours longer, varying the pressure on the artery as circumstances required. Pulsation or thrill being no longer discoverable in the tumour, which had now become more solid, compression was taken off; since which time the patient has been able to take exercise, and attend to his usual occupation, being perfectly restored to health.

The instrument employed by Dr. H., which is similar in principle to one described by Mr. Blizard, (*London Med. and Phys. Journ.*, vol. iii.,) consists of a quadrangular rod of iron, passing up on the outside of the thigh to its full length, of sufficient strength to sustain the force required. At its upper extremity it is connected with a broad concave pad by a neck of iron, about an inch long, coming off at right angles with it. The pad is to rest upon the trochanter major, and is to be retained in its place by a strap passing round the pelvis. The lower extremity of the rod has a similar neck of iron, but which is two inches long and slides upon the rod, so as to accommodate the instrument to the various lengths of limbs; the pad connected with it is also broad and concave, that it may the better repose upon the outer condyle of the femur, and is retained in its place by a strap passing round the knee. Two plates of iron, six or seven inches broad and eight inches long, connected together, are threaded in the centre by the rod so as to slide up and down; to the upper and lower edge and on the outer side, knobs are attached for the fastening of straps to be connected with three plate of iron of sufficient thickness, about two inches and a half broad and six inches long. These plates have knobs at the upper and lower extremity on the outside, for straps to be attached connecting them with the outer plate. These three plates are pierced in the centre for a screw, which is to have connected with it a pad similar to the common tourniquet pad, only larger. The straps connecting the plates can be shortened or lengthened at pleasure, so as to bring the pad of each to bear directly upon the femoral artery in its winding around the bone.

"By this arrangement," says Dr. H., "it will be perceived that I have successfully avoided compressing the collateral branches of arteries by making the *point d'appui* between the trochanter major and the outer condyle of the femur, while the resistance offered is alone from the inner side of the thigh bone, with the femoral artery intervening."

Ovarium successfully Extirpated. By H. MILLER, M. D., of Louisville, Kentucky. (*West. Journ. Med. and Surg.*, July 1848.) The subject of this case was 37 years of age, and she had first observed the tumour a few months previously, since when it had rapidly increased in size. On examination, Dr. Miller discovered a large tumour in the abdominal cavity, extending considerably above the umbilicus, and mostly occupying the right side, but stretching across the linea alba. Its shape was irregularly globular, and its consistency variable, being, at some points, much firmer than at others,—and in portions of it, fluctuation could be distinguished. Pressure upon it, even rude handling, gave no pain, and it appeared to be, in some degree, movable in the cavity.

Examined *per vaginam*, the tumour could be felt within the pelvis, and the uterus was found in its normal condition.

Doctor M. explained to the patient the nature of the case, and the risks of an operation, but she boldly determined to risk the latter to get rid of her burden. She consented, however, to delay until the following spring, when she again applied for relief. In consultation with Prof. Gross, Dr. T. L. Caldwell and Bayless, the operation was deemed advisable, and accordingly it was performed on the 6th of April, 1848, with the assistance of Prof. Gross, Dr. Bayless, Colescott, W. B. Caldwell, and T. G. Richardson. The patient being placed upon the table, on her back, her feet resting upon a chair, and the chloroform having been administered, an incision was made through the integuments, over the linea alba, from the umbilicus to the pubes. The fasciæ and peritoneum were then divided, by several strokes of the scalpel, at the upper part of the incision, and a finger introduced to guide the probe-pointed bistoury, with which an incision was made through these tissues corresponding to that of the integuments. The tumour was now brought to view, and found adherent, though not very firmly, to the omentum and parietes of the abdomen. To break up these adhesions, Dr. M. passed his hand into the abdominal cavity and around the tumour, and had no difficulty in accomplishing the object. It was soon ascertained that the tumour was too large to be pushed through the opening that had been made, but rather than extend this, he punctured two of the cysts, and discharged a quantity of fluid, resembling that which had been drawn off by tapping, a week previously,—the quantity could not be estimated, as it was suffered to run upon the table, whence it flowed across the room. By getting his hand posterior to it, Dr. M. now drew the tumour through the incision, and supported it while Professor Gross secured its pedicle, by a strong ligature, passed through the broad ligament, and tied round the Fallopian tube and ligament of the ovary, and then severed its connections by cutting across the broad ligament near the inferior part of the diseased ovary. The vessels of the outer extremity of the broad ligament bleeding considerably, these were secured by another ligature which included the whole of its margin.

The tumour being removed, the ovarian fluid which had been effused, in considerable quantity, into the abdominal cavity, and likewise the blood, were carefully sponged out, and the incision was closed, as usual, by the interrupted suture, adhesive strips, compresses, and bandage, the ligatures having been brought out at the inferior part of the incision. The operation was commenced at 1 o'clock, P. M., and the patient was put to bed in less than an hour, having borne it remarkably well; in fact, she felt, as she declared, very little pain, being under the influence of the chloroform.

Nothing very remarkable occurred during the convalescence; the sutures were cut out on the 13th day; on the 19th one of the ligatures yielded to gentle traction; "but the other, although gently pulled at every dressing, did not yield until the 7th of May (the 31st day), at which time the wound was firmly closed, except the small opening through which the ligatures were brought out.

The tumour, notwithstanding the tapping and the puncture of two of its cysts, at the time of the operation, weighed nine and a quarter pounds. It is composed of many cysts, of various sizes, having strong, thick walls, with smooth, polished linings, and filled, as many of them as were opened for inspection, with the same ropy, white fluid, as that discharged by the trocar.

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Case of Pseudo-Membranous Laryngitis, in which the operation of Tracheotomy, performed at an advanced stage of the disease, was followed by complete recovery. By C. D. Meigs, M. D.—A child four years of age becoming affected with difficult and noisy respiration, was placed under the care of a homœopathic practitioner; the parents having lost already a child from croup, recognized in this the same symptoms as were observed in the former case, and suggested to the medical attendant, that the child was labouring under that disease, but this he declared was not the case, but rather thought that the attack would turn out to be one of measles. The child, however, grew worse and worse—no eruption appeared upon the skin, and at the end of two weeks, the respiration having become increased in difficulty and attended with a distinct croupy sound, while the voice of the child was nearly extinct, the parents became alarmed and sent for Dr. Meigs. His son, Dr. J. F. Meigs, immediately saw the patient, and found it in an advanced stage of genuine membranous croup, attended with symptoms of the most violent character; an extensive deposition of membranous matter appeared to have taken place, and the case was looked upon as almost hopeless—with the view, however, of affording, if possible, some relief to the extreme difficulty of breathing, the doctor directed the application of five or six leeches to the throat on each side of the trachea. Dr. C. D. Meigs now saw the child, and considered it to be in the most imminent danger. The croupal symptoms were intense. Upon auscultation, not the slightest respiratory murmur could be detected in any part of the chest, giving the idea of an individual labouring under complete hepatization of both lungs. The air passed into the lungs with the greatest difficulty, the respiratory effort being prolonged to an extent beyond what the doctor recollects to have ever before witnessed. The child was extremely restless, its head was thrown back upon the spine, and every moment strangulation seemed imminent. A half ounce of powdered alum was directed, and one drachm of it given to the child at intervals of twenty minutes, until emesis was produced, which did not occur until after the fourth dose. This was rather an uncommon occurrence, vomiting being generally produced by a single dose of the alum; it evidently indicated a torpid state of the nervous mass, the result of the great change produced in the blood, in consequence of the imperfect performance of the respiratory function. No nausea or prostration followed the action of the emetic.

Early the next morning found the child labouring under the most distressing difficulty of respiration; the surface, and particularly, the face, lips, and tongue, were of a blue colour, and nearly all the symptoms of a state of asphyxia were present. Dr. M. considered that death was inevitable, but still, the operation of tracheotomy, though a forlorn hope, presented itself as the only possible means of relief. This was stated to the parents, who consented that it should be tried; accordingly, at eleven o'clock, the operation was performed by Dr. Pancoast. After laying bare the trachea, he divided the second, third, and fourth cartilaginous rings; immediately upon opening the trachea, a discharge took place of mucus, mixed with blood and portions of plastic lymph. In forty seconds, the child breathed with great freedom. Instead of inserting a tube in the usual manner, through the opening into the trachea, Dr. Pancoast secured the open state of this, by cutting from the trachea an elliptical portion of cartilage, thus leaving an oval opening into the tube somewhat larger than that of the two nostrils; while the edges of the incision through the soft parts were kept asunder by a leaden wire, which passing around the neck had the hooked ends of its two free extremities inserted on each side of the wound. The next day the child was up and running about. In a few days, the edges of the incision in the neck were brought together, the wound rapidly healed, and the child, within a surprisingly short period, recovered perfectly without a single disagreeable symptom occurring.—*Summary of Trans. of Philad. Coll. of Phys.*, vol. ii. No. 5.

Case of Membranous Croup of a severe character, and attended with all the symptoms of approaching death, which recovered without an operation for Tracheotomy. By Isaac Parrish, M. D.—The patient was a child of eighteen months old, which was attacked with what was supposed to be an ordinary catarrh, attended with a harsh dry cough. Simple domestic remedies had been administered for several days without effect, before the doctor was sent for.

When the patient was seen by him, the cough was "croupy," and the breathing obstructed to an alarming extent. On looking into the fauces, the whole back part of the throat was found lined with a thick, tenacious secretion. An emetic of two grs. of turpeth mineral was immediately administered, which operated promptly, but without relief. Calomel, grs. v., was administered, to be followed by castor oil in a few hours. After the operation of the purgative, there was still no decided relief; the turpeth mineral emetic was continued regularly every four hours, and the calomel in small doses every two hours, for several days; but the disease steadily progressed; no discharge of membrane having been induced: the breathing became more distressing, and finally, the child was unable to cry: the cough was dry and less developed, and the bronchial tubes appeared to be rapidly filling up. At this stage of the complaint, injections of assafetida and laudanum were given every four hours, solely with a view of assuaging the sufferings of the child, and all other medicines were suspended. The full effect of the opium was induced, and the jactitation and restlessness diminished, though the breathing continued as bad as ever. The child lay upon the pillow with the head thrown back, and was several times supposed to be dying, from the violence of the paroxysms of dyspnœa. The doctor left late in the evening, with directions to continue the anodyne, expecting to find his patient dead in the morning. On the morning visit, he was surprised to find that the paroxysms of extreme difficulty of breathing had been less frequent, and that the child had slept with comparative comfort, though the respiration was still exceedingly laborious. It was found that a discharge of thick yellow mucus had begun to issue from the nostrils during the night, and on examining the throat, it was evident that the membrane lining the fauces was loosening. The bowels had also been freely moved with copious yellow dejections.

This state of things afforded encouragement to resume the use of turpeth mineral, which acted promptly, bringing away large quantities of thick, yellow mucus, to the great relief of the infant, who, from this time, went on improving, and recovered rapidly.—*Ibid.*

Case of Parturition occurring in a Female labouring under Stricture of the Vagina. By C. D. Meigs, M. D.—On the 11th of April, 1845, the patient was delivered of her second child, and soon after was seized with fever, attended with some peculiar symptoms, which were found to result from a retroversion of the uterus, that had occurred before the uterus had become entirely reduced to its normal size and condition after parturition. During the remainder of 1845, and the whole of the ensuing year, the patient remained in tolerable health; early in 1847, she began to complain of pelvic pain, attended with some discharge from the vagina. She at first declined submitting to an examination to enable Dr. M. to ascertain the condition of the uterus and vagina. Her symptoms, however, increasing, she permitted finally the examination to be made: the neck of the uterus was found to be in a condition which induced Dr. M. to suppose, at first, that it was carcinomatous, but on resorting to the speculum, he ascertained that the neck of the uterus was the seat of an extensive ulceration, which did not appear to be of a malignant character. The superficies of the ulcer were equal to that of the fingers of one hand; there was considerable thickening of the parts affected, and portions of the surface were removable in the form of scales. It was treated by the nitrate of silver, but without any benefit resulting; the acid solution of the nitrate of mercury was substituted, and under its use the ulcer healed rapidly, and the general health of the patient soon improved, and became pretty well re-established by the time the ulcer was entirely cicatrized. As the ulcer healed, however, a very considerable contraction of the upper portion of the vagina took place, by which its cavity was reduced in diameter to that of an ordinary silver pencil. By the first of January of the present year, the lady became pregnant, and about the 10th of July labour pains were experienced. In an examination, to determine the condition of the vagina and os uteri, it was with the greatest difficulty Dr. M. succeeded in introducing his index finger through the stricture. Opiates, rest, &c., were resorted to in order to keep off the labour. On the 20th of the month the patient had very severe pains; the membranes, which were uncommonly tough, were gradually protruded beyond the vagina. All the means calculated to produce a relaxation of the vagina were resorted to: sulphate of morphia was administered by the mouth; the patient was immersed in a warm bath; mucilaginous fluids were injected into the vagina; and the strictured portion freely anointed with an ointment containing extract of belladonna. The vagina was finally dilated by the advancing head, and on the morning of the 21st, the child was born without instrumental assistance.—*Ibid.*

Spontaneous Evolution of the Fœtus. By N. W. Cole, M. D., of Burlington, N. J.—On the evening of the 10th of Oct., I received a message from my friend Dr. Haines, to visit with him a female in labour of her eleventh child, to whom he had been called in the afternoon, and to bring with me my instruments. The doctor informed me that upon his arrival he found one child born, and that another was presenting, with the shoulder and its right arm protruding. He stated also that he had made several unsuccessful attempts to turn. Upon examination I found everything as above stated. The labour pains had entirely ceased, from the time of the birth of the first child. Its waters evacuated, and the uterus was closely and rigidly contracted around its body, so much so that, after repeated efforts, I was obliged to abandon all idea of turning without using more force than would be justifiable.

While preparing the necessary instruments for taking the child away, (it was dead beyond all doubt—there being no pulsation from the time of my arrival,) the mother's pains returned; and Dr. Haines, who was sitting with her, observed the child to be lower down. I immediately made an examination, and found that some change was taking place. Its body seemed to descend, and I distinctly felt its shoulder ascend. In less than five minutes from the return of the pains, it had made a complete somerset. The feet and breech came down, and the head followed without any difficulty. It was healthy, and of the average size.—*New Jersey Med. Reporter*, Jan., 1848.

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Graduates of Jefferson Medical College of Philadelphia, March, 1848.—At a Public Commencement held on the 29th of March, 1848, the Degree of Doctor of Medicine was conferred on the following gentlemen by the Rev. Ezra Stiles Ely, D. D., President pro tempore in the absence of the Rev. Ashbel Green, D. D., LL. D., President of the Institution; after which a Charge to the Graduates was delivered by Professor Pancoast.

NAME.	STATE.	SUBJECT OF THESIS.
Alexander, Gerard	Kentucky,	Syphilis.
Anderson, John B.	Virginia,	Hypertrophy of the Heart.
Arnold, Edmund S. F.	England,	Pneumothorax.
Ayer, Francis B.	New Hampshire.	Typhoid Fever.
Baer, Caleb D.	Maryland,	Hydrocele.
Bainbridge, Eusebius C.	Kentucky,	Prolapsus Uteri.
Banks, William	Alabama,	Cold Stage of Intermittent Fever.
Baxley, Jabez B.	South Carolina,	Typhus Fever.
Bennett, Trumbull L.	New York,	Phthisis Pulmonalis.
Benson, Wirt F.	Tennessee,	Physiology of Respiration.
Bibb, William E.	Virginia,	Opium.
Birch, David	Ireland,	Nutriment of Fœtus.
Birdsell, Sylvester	Pennsylvania,	Cardiac Dropsy.
Blain, Hamilton L.	Virginia,	Dysentery.
Bolling, Lenæus	Virginia,	Acute Gastritis.
Bolton, James N.	Georgia,	Typhoid Fever.
Bourn, Richard W.	Missouri,	Datura Stramonium.
Bournonville, A., M.D.	Pennsylvania,	(Ad eundem.)
Bowen, James W.	Maryland,	Bilious Remittent Fever.
Brodnax, Robert	North Carolina,	Circulation of the Blood.
Brookbank, John W.	Iowa,	Intermittent Fever.
Brown, Henry James, M.D.	Pennsylvania,	Tetanus.
Brass, Andrew J.	Pennsylvania,	Eclampsia Infantum.
Brown, John T.	Pennsylvania,	Acute Dysentery.
Bruner, William H.	Pennsylvania,	Glands of Brunner.
Buck, Jonathan	Mississippi,	Fever.
Cable, Josiah C.	Ohio,	Physical Diagnosis.
Cahall, Thomas	Delaware,	Epidemic Erysipelas as it occurred at Dover, Del., in 1847.
Cameron, J. Walton	Virginia,	Pertussis.
Carr, William W.	Georgia,	Pneumonia.
Chambers, John M. Duncan,	Pennsylvania,	Typhoid Fever.
Chancellor, James E.	Virginia,	Digestion.
Churchman, Vincent T.	Virginia,	Differential Diagnosis of Typhus and Typhoid Fever.
Clark, George W.	Virginia,	Peritonitis.
Clements, L. Morgan	Alabama,	Acute Pleuritis.
Collet, Mark Wilkes	Pennsylvania,	Changes of the Blood in Disease.
Connalley, Reps	Virginia,	Acute Hydrocephalus.
Crouse, George Jackson	Pennsylvania,	Febris Remittens.
Davidson, Charles Edward	Virginia,	Puerperal Fever.
Davis, John, Jr.	Virginia,	Hematology.
Dennis, William H.	Virginia,	Cholera Infantum.
Deupree, William J.	Mississippi,	Congestive Fever.
Dice, Reuben B.	Virginia,	Acute Endo-gastritis.
Dixon, Lucius	Virginia,	Diseases of the Urinary Bladder.
Dodd, Robert J., Jr.	Pennsylvania,	Process of Digestion.
Doxey, John L.	Mississippi,	Gonorrhœa.
Drayton, Edward F.	Pennsylvania,	Curvatures of the Spine.
Fitzgerald, Edmund	Georgia,	Pathology of Inflammation.
Foard, Andrew Jackson	Georgia,	Rheumatism.
Folwell, Joseph N.	Kentucky,	Acute Dysentery.
Fort, Moses T.	Georgia,	Moral prophylaxis and treatment of diseases.
Frick, William S.	Pennsylvania,	Pharmaceutical Inconsistencies.
Gamble, George M.	Pennsylvania;	Conception.
Garnett, James H.	Virginia,	Differential Diagnosis of Typhus and Typhoid Fever.
Gauthreaux, Joseph Justin	Louisiana,	Typhus Fever.

NAME.	STATE.	SUBJECT OF THESIS.
Gilbert, Julius Cæsar	Georgia,	Yellow Fever.
Glass, Samuel	Ohio,	Pneumonia.
Green, James S.	North Carolina,	Constipation and its effects.
Gresham, Sterling A.	Georgia,	Cholera Infantum.
Guild, La Fayette	Alabama,	Healing of Wounds.
Gwyn, James D.	North Carolina,	Vis Medicatrix Naturæ.
Habersham, Stephen Elliott	South Carolina,	Inguinal Hernia.
Halley, Samuel H.	Virginia,	Scarlatina.
Hamilton, James	Pennsylvania,	Pathology of the Human Solids.
Harden, Robert Raymond	Georgia,	Acute Gastritis.
Harper, John P.	Missouri,	Acute Peritonitis.
Harris, Marcus A.	Virginia,	Diagnosis.
Hayes, Pliny H.	New York,	Physiological Anatomy of the Skin.
Henderson, William J.	Pennsylvania,	Hepatitis.
Herr, Henry F.	Pennsylvania,	Fecundation.
Hill, Alonzo A. F.	Georgia,	Hereditary Transmission.
Hillsman, William H.	Virginia,	Pneumonia.
Hobson, Samuel A.	Virginia,	Inguinal and Femoral Hernia.
Hore, Walter	Virginia,	Dysentery.
Hottenstein, Cyrus D.	Pennsylvania,	Amenorrhœa.
Houtz, Abraham	Ohio,	Typhoid Fever.
Howard, Nelson W.	New York,	Quackery.
Howell, George H.	Pennsylvania,	Pneumonia.
Humphreys, Benjamin W.	Tennessee,	Natural Indications.
Hunter, William R.	Maine,	Sulphuric Ether.
Isbell, Abner C.	Virginia,	Acute Articular Rheumatism.
Jackson, Samuel	Pennsylvania,	Opium.
Jenkins, Paul F.	South Carolina,	Gastritis.
Jenkins, Robert C.	Virginia,	Scarlatina.
Jessup, John J.	New Jersey,	The Tampon.
Jeter, John W.	Virginia,	Hysteria.
Jones, Daniel W.	Maryland,	Cutaneous System.
Jones, Robert Lewis	Mississippi,	Animal Calorification.
Jordan, Watson P.	Virginia,	Bilious Remittent Fever.
Kendrick, Oscar C.	Ohio,	Action of Ergot on the Vitality of the Blood.
Knapp, Franklin A.	New York,	Menstruation.
Koontz, George H. H.	Virginia,	Tic Douloureux.
Ladd, Horace	Pennsylvania,	Acute Pneumonia.
Leake, Virginius	Tennessee,	Vis Medicatrix Naturæ.
Leatherbury, Edward R.	Virginia,	Pneumonia.
Levis, Richard J.	Pennsylvania,	Influence of the Mind on Disease.
Lindsey, Hugh N.	Mississippi,	Chylosis.
Linn, William H.	New Jersey,	Intermittent Fever.
Long, John Wesley	North Carolina,	Menstruation.
Long, Reuben K.	Virginia,	Asphyxia.
Lothrop, James E.	New Hampshire,	Pneumonia.
Luther, Martin	Pennsylvania,	Acute Peritonitis.
M'Clure, Henry	Pennsylvania,	Intermittent Fever.
M'Ilvaine, Robert H.	North Carolina,	Qualifications of a Physician.
M'Nail, Thomas A.	Tennessee,	Acute Hepatitis.
Mackenzie, Thomas G.	Virginia,	Use of Sulphuric Ether.
Marsden, John H.	Pennsylvania,	Management of Lying-in Women.
Marshall, Theophilus O.	Virginia,	Cathartics and their Therapeutical Effects.
Mason, Edmunds	Alabama,	Typhoid, contrasted with Typhus Fever.
Merinar, William H.	Mississippi,	Yellow Fever.
Moore, William I.	New Jersey,	Iodine.
Moss, George W.	Missouri,	Remittent Fever of Northern Missouri.
Moultrie, Alonzo C.	Georgia,	Delirium Tremens.
Murphy, Cornelius T.	North Carolina,	Rubeola.
Murphy, John A.	Pennsylvania,	Peritonitis.
Nash, John W.	Virginia,	Asthma.
Neblett, Sterling, Jr.	Virginia,	Acute and Chronic Peritonitis.
Neff, Peter D.	Pennsylvania,	Asphyxia.
Nicholas, John Thomas	South Wales,	Lithuria.
O'Donnell, William	Pennsylvania,	Abortion.
Oldham, Robert H.	Tennessee,	Typhus Fever.
Osborne, Edward A.	New Jersey,	Typhoid Fever.
Owen, Edward	Pennsylvania,	Typhoid Fever.
Palmer, Charles	New Hampshire,	Apoplexy.

NAME.	STATE.	SUBJECT OF THESIS.
Parker, Edward H.	Massachusetts,	Diabetes Mellitus.
Patterson, Theophilus	New Jersey,	Dyspepsia.
Peters, Samuel Adams	Missouri,	Amenorrhœa.
Pettus, Luther C.	Virginia,	Chlorosis.
Phillips, Thomas A.	Mississippi,	Medical Empiricism.
Philbrick, Samuel R.	Massachusetts,	Principles of Diagnosis.
Preston, Alexander R., M.D.	Virginia,	(Ad eundem.)
Prince, William E.	Virginia,	Typhoid Fever.
Puryear, Richard R.	Virginia,	Carbonic Acid.
Ramsay, G. Randolph	Georgia,	Dyspepsia.
Ramsay, James Graham	North Carolina,	Congestive Fever.
Rand, B. Howard	Pennsylvania,	Animal Charcoal as an Antidote.
Reilly, Paul Jones	Missouri,	Duties of the Accoucheur.
Richardson, William L.	Pennsylvania,	Scarlet Fever.
Robb, John P.	Virginia,	Dysentery.
Robertson, Edwin J.	Virginia,	Therapeutical Agency of Sulphate of Quinia.
Robson, George T.	Virginia,	Remittent Fever.
Rogers, William Egbert	Tennessee,	Ammonia.
Rooke, Levi	Pennsylvania,	Phrenology.
Sample, John	Pennsylvania,	Acute Gastritis.
Scott, Samuel	Pennsylvania,	Pathology of Scarlatina.
Seltzer, John Horace	Pennsylvania,	Cynanche Trachealis.
Service, Lecky M.	Pennsylvania,	Adaptation of the Hand to the Arts and Sciences.
Smith, Elliott Iverson	Georgia,	Emansio Mensium.
Sutton, James L.	Pennsylvania,	Dropsy.
Sutton, Lewis	Pennsylvania,	Cynanche Trachealis.
Taylor, George T.	New Jersey,	Scarlatina.
Taylor, James M.	Pennsylvania,	Continued Fever.
Taylor, Leonidas C.	North Carolina,	Diagnosis of Pregnancy.
Terhune, Archibald A.	Georgia,	Moving Powers of the Blood.
Tharp, Jonathan	Delaware,	Pneumonia.
Tharp, William H.	Tennessee,	Intermittent Fever.
Thomas, John R.	Pennsylvania,	Pneumonia.
Thornton, Wm. P., M.D.	Mississippi,	(Ad eundem.)
Timberlake, Philip	Virginia,	Reproduction.
Tobias, John F.	Pennsylvania,	Acute Peritonitis.
Todd, Alexander H.	Maryland,	Typhus Fever.
Toombs, Robert E.	Georgia,	Gastritis.
Turner, James	Pennsylvania,	Acute Hepatitis.
Urquhart, Thomas H.	Virginia,	Acute Dysentery.
Vaughan, Thomas B.	Alabama,	Colica Pictonum.
Wallace, Robert B.	Alabama,	Endo-gastritis.
Walsh, William F.	Tennessee,	Erysipelas.
Walton, Lewis I.	Virginia,	Carbonic Acid Gas.
Welch, William A.	Alabama,	Peripneumony.
Whitaker, Benjamin F.	North Carolina,	Blood-letting.
White, G. Jefferson	Virginia,	Scarlatina.
Williams, Jr., William	Virginia,	Epidemic Fever that prevailed in Virginia, during the Autumn of 1845.
Wilson, Andrew J.	Virginia,	Tight Lacing.
Wilson, James A.	Pennsylvania,	Scarlatina.
Wimbish, James A.	Virginia,	Hydrogen.
Womble, Pembroke M.	Virginia,	Measles.
Wright, John	Pennsylvania,	Puerperal Fever.
Zimmerman, Reuben P.	Missouri,	Medicine.

Total, 178.

R. M. HUSTON, M. D., Dean.

UNIVERSITY OF PENNSYLVANIA, MEDICAL DEPARTMENT.

SESSION OF 1848–49.

The Medical Lectures will commence on Monday, the 16th day of October, and be delivered under the following arrangement.

Theory and Practice of Medicine, - - -	By Nathaniel Chapman, M. D.
Anatomy, - - - - - - - - -	" William E. Horner, M. D.
Materia Medica and Pharmacy, - - - -	" George B. Wood, M. D.
Chemistry, - - - - - - - -	" James B. Rogers, M. D.
Surgery, - - - - - - - - -	" William Gibson, M. D.
Obstetrics and the Diseases of Women and Children,	" Hugh L. Hodge, M. D.
Institutes of Medicine, - - - - - -	" Samuel Jackson, M. D.

Clinical Instruction at the Pennsylvania Hospital, by George B. Wood, M. D., on Medicine; and George W. Norris, M. D., on Surgery, twice a week.

Demonstrative Instruction in Medicine and Surgery, twice a week, by the Professors of the Medical Faculty, assisted by W. W. Gerhard, M. D., and Henry H. Smith, M. D.

Preliminary Lectures will be delivered daily from the 2d to the 14th of October, inclusive.

The rooms for Practical Anatomy will be open from October 1st, to the end of March ensuing. John Neill, M. D., Demonstrator.

Amount of Fees for Lectures in the University, $105; Matriculating Fee (paid once only), $5; Hospital Fee, $10; Practical Anatomy, $10; Graduating Fee, $30.

The Commencement will take place early in April.

W. E. HORNER, M. D., *Dean of the Medical Faculty,*
No. 386 *Chestnut Street, above Thirteenth, opposite the U. S. Mint.*

Philadelphia, August 1st, 1848.

PENNSYLVANIA MEDICAL COLLEGE.

FILBERT STREET ABOVE ELEVENTH, PHILADELPHIA.

The Annual Course of Instruction for the Session of 1848–49, will commence on Monday, October 16th, and be continued until the ensuing 1st of March, under the following arrangement:—

Principles and Practice of Medicine, - -	By Wm. Darrach, M. D.
Obstetrics and Diseases of Women and Children,	" John Wiltbank, M. D.
Materia Medica and Therapeutics, - - -	" Henry S. Patterson, M. D.
Anatomy and Physiology, - - - - -	" Wm. R. Grant, M. D.
Principles and Practice of Surgery, - - -	" David Gilbert, M. D.
Medical Chemistry, - - - - - - -	" Washington L. Atlee, M. D.

The Anatomical Rooms will be opened on the 1st of October, under the direction of Prof. Grant, assisted by A. F. M'Intyre, M. D., Demonstrator of Anatomy.

Pupils in attendance upon a Second Course of Lectures are provided with Tickets of admission to the Clinic of the Pennsylvania Hospital, Pine Street.

Fees.—Matriculation, $5; for each Ticket, $15; Graduation, $30.

HENRY S. PATTERSON, M. D., *Registrar,*
No. 92 *Arch Street.*

SYDENHAM MEDICAL INSTITUTE,

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Examinations, on Anatomy and Surgery, by A. C. Post, M. D., Surgeon to N. York Hospital, 4 Leroy place, (Bleecker street.)

" Theory and Practice of Medicine, by H. D. Bulkley, M. D., Physician to N. York Hospital, 43 Bleecker street.

" Chemistry and Materia Medica, by B. W. McCready, M. D., Prof. of Materia Medica and Pharmacy in N. York College of Pharmacy, 75 Spring street, near Crosby.

" Obstetrics and Diseases of Women and Children, by Thomas F. Cock, M. D., Visiting Physician of the Lying-in Asylum, 54 Bond street.

Students received for the winter only, or for the entire year. Those who join the Association for a period not less than eight months, will be entitled to tickets of admission for the year to the New York Hospital.

New York, *September* 27, 1848.

JEFFERSON MEDICAL COLLEGE.

SESSION OF 1848–9.

The regular Course of Lectures will commence on Monday, the 16th of October, and continue until the first day of March.

Robley Dunglison, M. D., Professor of Institutes of Medicine, &c.
Robert M. Huston, M. D., Professor of Materia Medica and General Therapeutics.
Joseph Pancoast, M. D., Professor of General, Descriptive and Surgical Anatomy.
John K. Mitchell, M. D., Professor of Practice of Medicine.
Thomas D. Mutter, M. D., Professor of Institutes and Practice of Surgery.
Charles D. Meigs, M. D., Professor of Obstetrics and Diseases of Women and Children.
Franklin Bache, M. D., Professor of Chemistry.
Ellerslie Wallace, M. D., Demonstrator of Anatomy.

Every Wednesday and Saturday in the month of October, and during the Course, Medical and Surgical cases are investigated, prescribed for, and lectured on before the class. During the past year more than thirteen hundred cases were treated, and nearly two hundred surgical operations performed, in the presence of the class, including many of the major operations, as lithotomy, amputations, &c. The Lectures are so arranged as to permit the student to attend the Medical and Surgical practice and Lectures at the Pennsylvania Hospital. After the first of October, the Dissecting Rooms of the College will be open, under the direction of the Professor of Anatomy and the Demonstrator.

FEES.—Matriculation, which is paid only once, $5; each Professor $15, = $105; Graduation, $30.

The number of Students during the last Session was 480; and of graduates 178.

R. M. HUSTON, M. D., *Dean of the Faculty*,
July, 1848. *No.* 1 *Girard Street.*

COLLEGE OF PHYSICIANS AND SURGEONS, OF THE UNIVERSITY OF THE STATE OF NEW YORK.

The Forty-second Session of the College will be commenced on Monday, 30th of October, 1848, and continued until the end of March, 1849.

Alexander H. Stevens, M. D., President of the College and Emeritus Professor of Clinical Surgery.
Joseph M. Smith, M. D., Professor of the Theory and Practice of Medicine and Clinical Medicine.
John B. Beck, M. D., Professor of Materia Medica and Medical Jurisprudence.
John Torrey, M. D., LL. D., Professor of Botany and Chemistry.
Robert Watts, jun., M. D., Professor of Anatomy.
Willard Parker, M. D., Professor of the Principles and Practice of Surgery.
Chandler R. Gilman, M. D., Professor of Obstetrics and the Diseases of Women and Children.
Alonzo Clark, M. D., Professor of Physiology and Pathology (including Microscopy).
Charles E. Isaacs, M. D., Demonstrator of Anatomy.

FEES.—Matriculation Fee, $5; Fees for the full Course of Lectures, $108; Demonstrator's Ticket, $5; Graduation Fee, $25; Board, average $3 per week.

Clinical Instruction is given at the New York Hospital daily, by the Medical Officers, (Professor Smith being one of them,) fee $8 per annum; at the Eye Infirmary, without fee; and upwards of 1000 patients are annually exhibited to the class in the College Clinique. Obstetrical cases and subjects for Dissection are abundantly furnished through the respective departments.

The Annual Commencement is held at the close of the Session; there is also a Semi-annual Examination in September. The requisites for Graduation are,—21 years of age, three years of Study, including two full Courses of Lectures, the *last* of which must have been attended in this College, and the presentation of a Thesis on some subject connected with Medical Science.

In addition to the regular course, and not interfering with it, a Course of Lectures will be commenced on Monday, 2d October, and continued until the 30th October. This Course will be *free.*

R. WATTS, Jr., M. D., *Secretary to the Faculty.*
College of Physicians and Surgeons, 67 *Crosby Street, New York.*

MASSACHUSETTS MEDICAL COLLEGE.

The Medical Lectures of Harvard University will commence on the first Wednesday in November, at the Medical College in Grove Street, Boston, and continue four months.

Obstetrics and Medical Jurisprudence by Walter Channing, M. D.
Materia Medica and Clinical Medicine by Jacob Bigelow, M. D.
Surgery by George Hayward, M. D.
Chemistry by John W. Webster, M. D.
Theory and Practice of Medicine by John Ware, M. D.
Pathological Anatomy by John B. S. Jackson, M. D.
Anatomy and Physiology by Oliver W. Holmes, M. D.

The fees for the whole course are collectively, $80. Matriculation, $3. Dissecting Ticket, $5; Graduation, $20. Admission to the Hospital and use of the Library are gratuitous.

The New Medical College in Grove Street is of ample dimensions, and contains, besides its Lecture Rooms, a very extensive museum of Healthy and Pathological Preparations, and a complete Chemical Laboratory.

The Massachusetts General Hospital is now one of the largest, best endowed and best arranged institutions in the United States. Four of the Professors in the University are also physicians or surgeons of the Hospital, so that regular clinical instruction is given, and all the surgical operations are open to the medical students during the lectures and throughout the year.

OLIVER W. HOLMES, *Dean.*

Boston, *July* 26, 1848.

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